

HIGHWAY BRIDGE REPLACEMENT AND REHABILITATION PROGRAM

HEARING
BEFORE THE
SUBCOMMITTEE ON TRANSPORTATION
OF THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
NINETY-SEVENTH CONGRESS
SECOND SESSION
ON
S. 1649
A BILL TO IMPROVE THE HIGHWAY BRIDGE REPLACEMENT
AND REHABILITATION PROGRAM

FEBRUARY 10, 1982

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HIGHWAY BRIDGE REPLACEMENT AND REHABILITATION PROGRAM

WEDNESDAY, FEBRUARY 10, 1982

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON TRANSPORTATION,
Washington, D.C.

The subcommittee met at 2:10 p.m., in room 4200, Dirksen Senate Office Building, Hon. Steve Symms (chairman) presiding.
Present: Senator Symms.

OPENING STATEMENT OF HON. STEVE SYMMS, U.S. SENATOR FROM THE STATE OF IDAHO

Senator SYMMS. The subcommittee will come to order.

I want to welcome all of you who are here this afternoon to testify on the highway bridge replacement program. We look forward to hearing from the witnesses scheduled this afternoon.

The purpose of the hearing is to assess the bridge needs in this country and to discuss the effectiveness of the bridge replacement and rehabilitation program in addressing those needs.

The condition of this country's bridges was brought to the attention of the Congress following the tragic collapse of the Silver Bridge which crossed the Ohio River between West Virginia and Ohio. The Highway Act of 1968 put into place the national bridge inspection program, which required the Secretary of Transportation to develop standards for inspecting Federal-aid bridges. The Highway Act of 1970 authorized Federal funds for bridge replacement in a separate bridge category. Both the scope of the bridge program and the level of funding was significantly increased by the 1978 Highway Act.

Over \$5 billion has been authorized for the bridge program since it began in 1970. The most recent report to the Congress by the Department of Transportation on the bridge program estimates that it will cost over \$40 billion to replace or rehabilitate all the deficient bridges in the country.

The bridge program is currently authorized through fiscal year 1982. In evaluating the effectiveness of this program, the subcommittee will be addressing the following issues: (1) The bridge apportionment formula; (2) the Federal, State and local responsibility for the program; (3) project selection under the discretionary program; (4) State compliance with the national bridge inspection standards; (5) the status of the bridge inventory; (6) the appropriate Federal participation in the replacement and rehabilitation of off-system

bridges; (7) the need for bridges owned by Federal agencies to comply with the national bridge inspection standards; and (8) the appropriate future level of funding for the bridge program.

Many of these issues were addressed by a recent General Accounting Office report entitled "Better Targeting of Federal Funds Needed to Eliminate Unsafe Bridges." This report was requested by Senator Sasser after a bridge collapsed in Memphis, Tenn. Senator Sasser has also introduced legislation, S. 1649, the National Bridge Improvement Act of 1981. A further purpose of this hearing is for the subcommittee to receive testimony regarding the recommendations of the GAO report and the legislation which has been introduced.

I am going to insert in the record a statement from Senator Randolph who is at another committee meeting. Senator Sasser is required to stay at a budget hearing this afternoon so he will not be able to attend this hearing. I will place his statement in the record also.

[The statements referred to follow:]

**OPENING STATEMENT OF HON. JENNINGS RANDOLPH, U.S.
SENATOR FROM THE STATE OF WEST VIRGINIA**

Senator RANDOLPH. The hearing this afternoon focuses on one of the most severe problems facing this country. Nationally there are approximately 500,000 bridges of which approximately 40 percent are deficient. Nearly half of these are structurally deficient, in that they are unsound, restricted to lighter vehicles, or immediate rehabilitation is needed to prevent further deterioration.

As these figures indicate, this is a significant national problem which has been addressed by the highway program since I authored the provision in the 1973 Federal-Aid Highway Act. Early funding was small and did not begin to address the growing needs. In the Surface Transportation Assistance Act of 1978 the Congress made significant steps forward by dramatically increasing the authorized level of funding for the bridge rehabilitation program. In fiscal year 1979 funding was increased from \$180 million the previous year to \$900 million and funding continued to rise to \$1.3 billion by 1981.

While the authorization level for this program is important, it is equally important to see that the funds are apportioned in a fair and equitable manner. The current formula, based on the square footage of the number of deficient bridges in each State compared to the national total, is not equitable. Last year this committee, in S. 1024, proposed a change which weighted the various classes of bridges and took into account the square footage of deficient bridges. This was not adopted when the amended version of S. 1024 passed the Congress at the end of the first session of the 97th Congress.

I believe that it is necessary to continue to examine the formula for the distribution of funds for this vital program. The members of this committee must also examine how priorities are established at the State and local level for replacement or rehabilitation activities. Further, we must reexamine the discretionary bridge program

which I feel is important to determine if project selection criteria are required on which the Secretary can base his decisions.

The bridge replacement and rehabilitation program is a vital element of the highway program of this Nation. I am pleased to participate in this hearing because answers to some of the concerns which I have raised are necessary for the future.

I look forward to hearing the testimony of the able Senator from Tennessee, Mr. Sasser, and other witnesses representing the highway building agencies of this country.

TESTIMONY

BY

SENATOR JIM SASSER

MR. SASSER:

MR. CHAIRMAN, I WANT TO THANK YOU FOR HOLDING THESE HEARINGS TODAY. OUR NATION'S BRIDGES ARE FACING AN OVERWHELMING PROBLEM OF DISREPAIR. I APPRECIATE THE CONCERN OF THE SENATORS PRESENT FOR THIS SERIOUS NATIONAL PROBLEM, AND I WANT TO THANK YOU AND SENATORS BENTSEN AND STAFFORD FOR YOUR INTEREST OVER THE PAST MONTHS.

MY OWN ATTENTION WAS FIRST DIRECTED TO THIS MATTER IN MARCH OF 1980, WHEN THE PERKINS STREET BRIDGE IN MEMPHIS, TENNESSEE, COLLAPSED UNEXPECTEDLY, KILLING ONE MOTORIST AND INJURING TWO OTHERS.

A YEAR LATER, MR. LESTER LAMM, EXECUTIVE DIRECTOR OF THE FEDERAL HIGHWAY ADMINISTRATION, SPOKE ON CBS NEWS ABOUT THE SAFETY OF OUR NATION'S BRIDGES. HE SAID THAT "YOU CAN CROSS ANY BRIDGE THAT YOU COME TO WITH AN ABSOLUTE FEELING THAT YOU'RE NOT IN DANGER BECAUSE OF THE INSPECTION PROCESS" WHICH FHA USES TO IDENTIFY WHICH BRIDGES REQUIRE REPAIR.

UNFORTUNATELY, A REPORT WHICH I HAD PREPARED BY THE GENERAL ACCOUNTING OFFICE UNDERMINES THE CLAIM THAT ALL IS WELL WITH THE BRIDGE INSPECTION, REPAIR AND REPLACEMENT PROGRAMS. THESE PROGRAMS REQUIRE PERIODIC INSPECTIONS OF ALL OUR NATION'S BRIDGES, AND PROVIDE FEDERAL FUNDS TO THE STATES FOR THE REPLACEMENT OR REPAIR OF UNSAFE BRIDGES, INCLUDING BRIDGES ON THE FEDERAL AID HIGHWAY SYSTEM.

AS THE REPORT STATES, "THERE ARE MORE THAN 500,000 BRIDGES NATIONWIDE, AND MANY ARE OLD OR HAVE PASSED OR ARE APPROACHING THE END OF THEIR EXPECTED LIFE. THE THREAT TO SAFETY, THE INCONVENIENCE AND THE FINANCIAL BURDEN OF THE APPROXIMATELY 200,000 DETERIORATED AND OBSOLETE BRIDGES HAVE BECOME A NATIONAL CONCERN."

LET ME SAY THAT I SUPPORTED THE COMMITTEE'S ACTION LAST FALL WHEN IT REDIRECTED THE EMPHASIS OF THE FEDERAL HIGHWAY PROGRAM TO FOCUS ON THE MAINTENANCE AND REPAIR OF EXISTING ROADS. I WAS, HOWEVER, CONCERNED THAT THE AUTHORIZATION FOR BRIDGE MAINTENANCE AND REPAIR WAS CUT BY 22 PERCENT.

NOW I SHARE THE CONCERN OF MANY ON THIS SUBCOMMITTEE THAT THE FEDERAL GOVERNMENT DOES NOT INTRUDE INTO EVERY STATE FUNCTION, NOR INTO EVERY ASPECT OF THE STATES' ADMINISTRATION OF FEDERAL PROGRAMS. BUT THERE IS ONE INSTANCE IN WHICH I BELIEVE THAT THE FEDERAL HOUSE IS NOT IN ORDER. MANY FEDERAL AGENCIES OWN AND OPERATE BRIDGES TODAY PARTICULARLY IN OUR NATIONAL PARKS SYSTEM. I BELIEVE THAT THESE FEDERAL AGENCIES SHOULD COMPLY WITH THE SAME STANDARDS OF INSPECTION AND MAINTENANCE AS WE NOW REQUIRE OF THE STATES. THIS WOULD BE A FAIR, CONSISTENT AND RESPONSIBLE PUBLIC POLICY.

BUT I WANT TO KEEP TO THE MATTER AT HAND, THE MATTER OF THE URGENT NEED FOR THE MEANS OF MAINTAINING THE 200,000 DEFICIENT BRIDGES IN OUR COUNTRY. THE NUMBERS ARE TRULY ASTONISHING. IN TENNESSEE ALONE, THERE ARE 6,176 DEFICIENT BRIDGES, ALMOST HALF OF WHICH ARE BRIDGES ON THE FEDERAL-AID HIGHWAY SYSTEM.

IT HAS BEEN ESTIMATED BY THE FEDERAL HIGHWAY ADMINISTRATION THAT THE COST OF REPAIRING OUR NATION'S DEFICIENT BRIDGES IS RAPIDLY APPROACHING \$42 BILLION. AT THE CURRENT RATE OF FUNDING, IT WOULD TAKE 60 YEARS FOR US TO REPAIR THE BRIDGES WE KNOW NOW TO BE DEFICIENT. I HOPE THAT THE COMMITTEE GIVES DUE CONSIDERATION TO THIS FACT.

SO LET ME GET TO THE SPECIFICS OF THE REPORT OF THE GENERAL ACCOUNTING OFFICE. I THINK THAT IT WOULD BE BENEFICIAL, MR. CHAIRMAN, TO HAVE A SUMMARY OF THE REPORT PRINTED IN THE HEARING RECORD, ALONG WITH A COPY OF MY BILL, S. 1649, WHICH WAS PROMPTED BY THE GAO REPORT.

THE GENERAL ACCOUNTING OFFICE REPORT FOUND THAT THE INSPECTION SYSTEM OFTEN FAILS TO IDENTIFY THOSE BRIDGES THAT ARE IN A STATE OF IMMINENT COLLAPSE. THE BRIDGE TO WHICH I REFERRED EARLIER, THE PERKINS STREET BRIDGE IN MEMPHIS WHICH COLLAPSED, KILLING ONE AND INJURING TWO OTHERS, HAS A 59 SUFFICIENCY RATING ON A SCALE OF 100.

THE GENERAL ACCOUNTING OFFICE FOUND THAT SOME INSPECTORS DO NOT MEET THE MINIMUM QUALIFICATIONS FOR TRAINING AND EXPERIENCE. GAO FOUND THAT STATES AND LOCALITIES DO NOT ALWAYS INSPECT BRIDGES AS OFTEN AS REQUIRED. GAO FOUND THAT STRUCTURALLY WEAK BRIDGES ARE NOT ALWAYS PROPERLY CLOSED OR POSTED FOR LOWER WEIGHT CAPACITY. THIS AMOUNTS TO AN INADEQUATE COMPLIANCE WITH NATIONAL INSPECTION STANDARDS.

THE OTHER MATTER RAISED BY THE GAO IS THE PROBLEM OF SENDING FUNDS TO WHERE THEY 'LL DO THE MOST GOOD. NOT ONLY DO WE NOT HAVE ADEQUATE INFORMATION ON BRIDGE DEFICIENCIES, WE DO NOT FOLLOW WHAT INFORMATION WE DO HAVE ABOUT WHICH BRIDGES ARE MOST IN NEED OF ATTENTION.

NOW, I UNDERSTAND THE NEED FOR PREVENTIVE MEDICINE, BUT BRIDGES WHICH ARE IN ADEQUATE CONDITION SHOULD RECEIVE FUNDS AFTER THOSE WHICH POSE A HAZARD TO PUBLIC SAFETY. THE GAO REPORT AGREED THAT MANY WORTHY PROJECTS ARE SELECTED. BUT THE REPORT ALSO NOTED THAT THE FEDERAL HIGHWAY ADMINISTRATION'S PROJECT ELIGIBILITY CRITERIA DO NOT

CONCENTRATE ON BRIDGES IN THE WORST CONDITION AND MOST IN NEED. BRIDGES WITH DECKS CONTAMINATED BY SNOW SALT ARE JUST AS, QUOTE, "DEFICIENT," UNQUOTE, AS BRIDGES WITH A CRITICALLY WEAK SUBSTRUCTURE.

MOREOVER, FUNDS HAVE BEEN APPORTIONED TO THE STATES ACCORDING TO INCOMPLETE AND OUTDATED NEEDS DATA. FOR INSTANCE, MY OWN STATE OF TENNESSEE LOST \$10 MILLION IN FISCAL 1981 DUE TO THESE LAGS IN THE DATA SYSTEM.

I AM PLEASED THAT THE SENATORS PRESENT HERE TODAY HAVE TAKEN SUCH AN INTEREST IN THIS IMPORTANT PROBLEM FOR PUBLIC SAFETY. I APPRECIATE THE COMMITTEE'S INTEREST IN THIS MATTER, AND I WOULD LIKE TO THANK THE CHAIR FOR INVITING ME TO OPEN DISCUSSION THIS AFTERNOON. I TRUST THAT THIS HEARING WILL BE SUCCESSFUL IN IMPROVING THE FEDERAL PROGRAM THAT SERVES TO REPAIR THE "WEAK LINK" IN OUR FEDERAL HIGHWAY SYSTEM. AND I HOPE THAT THE COMMITTEE MOVES WITH THE SAME SOUND AND EARNEST APPROACH ON THIS MATTER AS IT DID ON THE SIMILAR MATTER OF 4-R MAINTENANCE OF OUR NATIONAL HIGHWAY SYSTEM. I THANK CHAIRMAN SYMMS FOR THE TIME OF THE COMMITTEE TODAY, AND FOR HIS CONSIDERATION AND INTEREST IN THIS MATTER.

To improve the highway bridge replacement and rehabilitation program.

SEPTEMBER 22 (legislative day, SEPTEMBER 9), 1981

Mr. SASSER (for himself, Mr. ROBERT C. BYRD, Mr. STENNIS, Mr. RANDOLPH, Mr. HART, and Mr. COCHRAN) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

To improve the highway bridge replacement and rehabilitation program.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,
That this Act may be cited as the "National Bridge Improvement Act of 1981".

5 REFERENCES AND DEFINITIONS

6 SEC. 2. (a) Except as otherwise specifically provided,
7 whenever in this Act a reference is expressed in terms of a
8 section or other provision, the reference shall be considered

1 to be made to a section or other provision, respectively, of
2 title 23, United States Code.

3 (b) As used in this Act—

4 (1) the term "Secretary" means the Secretary of
5 Transportation;

6 (2) the term "bridge" means a structure on which
7 a highway crosses over waterways, other topographical
8 barriers, other highways, and railroads;

9 (3) the term "highway" shall have the meaning
10 provided in section 101(a);

11 (4) the term "Federal-aid system" shall have the
12 meaning provided in section 101(a);

13 (5) the term "improvement" includes replacement
14 and rehabilitation;

15 (6) the term "deficient" means structurally defi-
16 cient or functionally obsolete;

17 (7) the term "highway bridge replacement and re-
18 habilitation program" means the highway bridge re-
19 placement and rehabilitation program establishment
20 under section 144; and

21 (8) the term "national bridge inspection stand-
22 ards" means the national bridge inspection standards
23 established under section 116(d).

24 FINDINGS AND PURPOSE

25 SEC. 3. (a) The Congress finds that—

1 (1) of the more than five hundred and fifteen thou-
2 sand bridges in the United States, almost four out of
3 every ten are deficient;

4 (2) deficient bridges increase the potential for traf-
5 fic deaths, injuries, and property damage, and add to
6 fuel consumption, air pollution, and the cost of goods
7 and services; and

8 (3) the total cost to replace and rehabilitate defi-
9 cient bridges nationwide is rapidly approaching
10 \$42,000,000,000.

11 (b) The purpose of this Act is to make effective revisions
12 of the highway bridge replacement and rehabilitation pro-
13 gram in order to ensure the replacement and rehabilitation of
14 the deficient bridges in the United States in a timely and
15 efficient manner, the fair distribution of Federal funds within
16 the various States for replacement and rehabilitation of
17 bridges, and the compliance of the States with the national
18 bridges inspection standards.

19 BRIDGE IMPROVEMENT PROGRAM

20 SEC. 4. The Secretary shall—

21 (1) revise, consistent with the provisions of section
22 144 (b) and (c), the criteria for assignment of priorities
23 for bridge replacement and rehabilitation under such
24 section to concentrate Federal funding on bridges most
25 in need of replacement and rehabilitation;

1 (2) establish a formal procedure for the exercise of
2 the Secretary's discretion in selecting highway bridge
3 replacement and rehabilitation projects for the obliga-
4 tion of funds under section 144(g) to ensure considera-
5 tion of the costs and benefits of each such project and
6 the classification of the bridge under section 144 (b)
7 and (c) in each such project;

8 (3) establish administration guidelines for the dis-
9 tribution of highway bridge replacement and rehabilita-
10 tion apportioned funds throughout each State under
11 section 144(j) with provisions for flexibility with re-
12 spect to State administration of the apportioned funds;
13 and

14 (4) monitor the distribution of highway bridge re-
15 placement and rehabilitation program apportioned
16 funds throughout each State under section 144(j).

17 NATIONAL BRIDGE INSPECTION STANDARDS

18 SEC. 5. (a) The Secretary shall—

19 (1) review each State's compliance with the na-
20 tional bridge inspection standards;

21 (2) revise such standards—

22 (A) to improve inspection requirements, in-
23 cluding decreasing the maximum time lapse be-
24 tween inspections;

1 (B) to define precisely the factors to be con-
2 sidered and the methods used in rating the condi-
3 tion of bridges; and

4 (C) to establish a standard for timely proc-
5 essing data resulting from inspections under such
6 standards;

7 (3) assess the need for greater State and local
8 government authority for inspection of bridges;

9 (4) encourage the States to take the actions nec-
10 essary fully to comply with the national bridge inspec-
11 tion standards relating to posting limits on bridges and
12 closing bridges; and

13 (5) ensure that all Federal agencies maintaining
14 bridges comply with the national bridge inspection
15 standards.

16 (b)(1) No later than January 1, 1983, the Secretary
17 shall prepare and, to the extent permitted by law, implement
18 a plan of action designed to result in full compliance by the
19 States and local governments with the national bridge inspec-
20 tion standards.

21 (2) In preparing the plan required by paragraph (1) of
22 this subsection, the Secretary shall consider the imposition of
23 penalties and other sanctions against the States and local
24 governments not fully complying with such standards.

1 NATIONAL BRIDGE INVENTORY

2 SEC. 6. Not later than January 1, 1983, the Secretary
3 shall—

4 (1) establish procedures to ensure the rapid com-
5 pletion of accurate inventories of bridges under section
6 144 (b) and (c); and

7 (2) inventory all bridges maintained by Federal
8 agencies.

9 PUBLIC INFORMATION

10 SEC. 7. The Secretary shall prepare a plan for a public
11 information program with respect to the weight limits, clos-
12 ings, and hazards, if any, of each bridge. The Secretary shall
13 include in such plan provisions for administration of such pro-
14 gram by the States.

15 REPORT TO CONGRESS

16 SEC. 8. The Secretary shall prepare and transmit to the
17 Congress, not later than July 15, 1983, a report on the ad-
18 ministrative actions taken under the provisions of this Act
19 and the results of such actions. Such report shall include—

20 (1) recommendations for legislative action as the
21 Secretary considers necessary to ensure that—

22 (A) the bridges most in need of replacement
23 and rehabilitation are always selected for funding
24 under the highway bridge replacement and reha-
25 bilitation program;

1 (B) there is a fair and equitable distribution
2 of such funding throughout each State; and

3 (C) the States fully comply with the national
4 bridge inspection standards, and

5 (2) the Secretary's recommendations with respect
6 to whether the Congress should increase the maximum
7 per centum of apportioned funds which may be expend-
8 ed under section 144(g) for projects to replace or reha-
9 bilitate highway bridges located on public roads, other
10 than on a Federal-aid system.

BY THE COMPTROLLER GENERAL
Report To The Honorable James R. Sasser
United States Senate

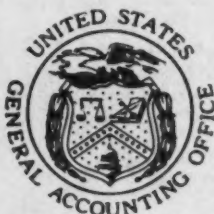
OF THE UNITED STATES

**Better Targeting Of Federal Funds
Needed To Eliminate Unsafe Bridges**

The Federal Highway Administration estimates that it would cost \$41.1 billion to replace or rehabilitate the more than 200,000 deficient bridges in the Nation. The Federal bridge program—currently funded at slightly more than \$1 billion per year—helps States and local governments to finance replacement or rehabilitation of these bridges by providing up to 80 percent of project costs.

GAO found that the program is not as effective as it could be because of its broad criteria for funding eligibility—those bridges most in need of attention are not always selected. GAO also found that States and local governments are not fully complying with the National Bridge Inspection Standards.

The Secretary of Transportation should direct the Federal Highway Administration to revise the eligibility criteria, concentrate on bridges most in need of replacement or rehabilitation, and still provide flexibility for the States and local governments. The Secretary should also direct the Federal Highway Administration to assess and develop a strategy for bringing about full compliance with inspection standards. GAO also makes several recommendations to the Congress to further improve these programs.



CED-81-126
AUGUST 11, 1981

COMPTROLLER GENERAL'S
REPORT TO THE HONORABLE
JAMES R. SASSER
UNITED STATES SENATE

BETTER TARGETING OF FEDERAL
FUNDS NEEDED TO ELIMINATE
UNSAFE BRIDGES

D I G E S T

The United States has more than 500,000 bridges, and slightly over 200,000--or almost 4 out of every 10 bridges--are deficient. The Federal Highway Administration currently estimates that it will cost \$41.1 billion to rehabilitate or replace these bridges. (See p. 9.)

National bridge inventory data shows that about 98,000 bridges are structurally weak or unsound and must be closed, restricted to lighter vehicles, or immediately rehabilitated to prevent further deterioration and collapse. The other 102,000 deficient bridges are functionally obsolete because they are narrow, have inadequate underclearances, have insufficient load-carrying capacity, or are poorly aligned with the roadway and can no longer safely service today's traffic. In total, it is reported that about 120,000 bridges are or should be posted for lower weight limits; over 3,700 bridges are reported as closed to all traffic. (See pp. 5, 11, and 25.)

The December 1967 collapse of the Silver Bridge over the Ohio River between West Virginia and Ohio killed 46 people and focused national attention on bridge conditions. Shortly thereafter, the Congress established two major bridge safety programs: a program of periodic inspections to identify bridge conditions, maintenance needs, and safety problems and a program to provide Federal funds to the States specifically to help replace unsafe bridges. (See p. 1.)

GAO reviewed these programs at the request of Senator James Sasser of Tennessee and found that limited Federal bridge program funds are not always used on bridges most in need of attention. GAO also found that Federal agencies, States, and local governments are not fully complying with national standards for bridge inspection.

BETTER TARGETING OF FEDERAL
BRIDGE FUNDS NEEDED

The Federal Government has become the major source of funds--particularly through the Federal bridge program--to replace or rehabilitate deficient bridges, and many State and local governments depend heavily on these funds. (See p. 25.) Bridge program funding authorizations have totaled \$5 billion from the program's beginning in fiscal year 1972 through fiscal year 1982. Authorizations averaged about \$120 million per year for the program's first 7 years and slightly over \$1 billion for the last 4 years. (See p. 18.) Initially limited to bridges on the Federal-aid highway system, subsequent legislation in November 1978 expanded the programs to also include bridges off the Federal-aid system. (See p. 1.)

Under the bridge program, the Federal Government contributes up to 80 percent of replacement or rehabilitation costs, and State and/or local governments provide the rest. Some bridges are being replaced or rehabilitated under other Federal-aid programs and some are being replaced or rehabilitated solely with State and local funds. However, at current funding levels, it will take years to eliminate the deficient bridges already identified. Additional bridges will need replacing during this period, and continued inflation at the current rate would more than double the cost in 10 years. (See pp. 4 and 25.)

In view of the size of the bridge problem and the limited amount of funds available, it is essential that program funds be used for bridges most in need. However, GAO found that

- the Federal Highway Administration's project eligibility criteria do not concentrate on bridges in the worst condition and most in need;
- many worthy projects are funded, but bridges most in need are not always selected; and
- funds have been apportioned to the States based on incomplete and outdated needs data.

Most of the program funds are apportioned to the States. However, \$200 million annually are to be used as discretionary funds by the Secretary of

Transportation for bridges whose replacement or rehabilitation cost would be greater than \$10 million or twice the respective States' fiscal year authorizations. (See pp. 4 and 26.) The Federal Highway Administration selects the bridges for discretionary funding (subject to final approval by the Secretary of Transportation). The States select the bridges to be replaced or rehabilitated with the regular bridge program funds. (See pp. 41 and 42.)

Each bridge receives a sufficiency rating, which is the method used to evaluate the adequacy of a bridge to remain in service in its present condition. A rating of 100 would represent an entirely sufficient bridge--one that needs absolutely no work. A 0 rating would indicate an entirely insufficient or deficient bridge--one that has many safety problems and should be closed. The lower the rating, the higher the priority for replacement. (See pp. 6 and 42.)

The Federal Highway Administration's eligibility criteria are broad. The definition of a deficient bridge includes a wide variety of bridge inadequacies and conditions. Under the criteria, deficient bridges with sufficiency ratings of 80 or below on a scale of 0 to 100 are eligible. Those with ratings below 50 can be replaced or rehabilitated. Those with ratings of 50 through 80 generally can be rehabilitated only. (See pp. 42 and 60.)

The States are selecting many bridges with low sufficiency ratings for Federal funding. In the 10 States that GAO examined project approval data, about 40 percent of the bridges selected for funding had ratings below 20. However, the States also are selecting some bridges with relatively high ratings. For the 10 States, 534, or about 21 percent, of the 2,544 bridges selected had ratings of 40 or above and many of these had ratings of 60 or above. (See p. 50.)

Federal Highway officials said that they encourage the States to select bridges with lower sufficiency ratings, but the States may select any eligible bridge and many factors, some unique to an individual State, enter into the selection process. (See p. 53.)

The Federal Highway Administration is selecting bridges for discretionary funding with relatively high sufficiency ratings when other eligible

bridges have much lower ratings and are in much worse condition. The major reason is that bridges with legislative history are selected first. The Federal Highway Administration considers bridges to have legislative history if they are mentioned in congressional committee reports or the Congressional Record as candidates for discretionary funding. More and more bridges are receiving legislative history. (See pp. 41 and 59.)

Apportionments to the States have not been based on complete and current needs data which is available. For example, fiscal year 1982 apportionments will be based on 1978 data that does not include many bridges that are eligible for the program, such as those off the Federal-aid system. (See pp. 27 and 36.)

RECOMMENDATIONS

GAO is recommending that the Secretary of Transportation direct the Administrator of the Federal Highway Administration to:

- Revise the bridge program's project eligibility criteria to concentrate on bridges in the worst condition and most in need of replacement or rehabilitation but still provide some flexibility for State and local governments.
- Develop a formal selection process for discretionary projects to properly weigh factors such as sufficiency ratings, costs, and benefits. (See p. 61.)

GAO is also recommending that the Congress, in future bridge program authorizations, have the Secretary of Transportation use the latest available needs data, including bridge needs off the Federal-aid system, to apportion program funds. (See p. 37.)

See pp. 37 and 38 for additional recommendations.

BETTER COMPLIANCE WITH NATIONAL BRIDGE INSPECTION STANDARDS NEEDED

The major aspect of the National Bridge Inspection Program is that State and/or local governments maintain a bridge inventory and comply with the inspection standards. (See pp. 1, 3, and 87.)

GAO found that State and local governments have made progress since the program's start, but they are not fully complying with the standards. For example:

- Some inspectors do not meet the minimum qualifications for training and experience.
- Some State and local governments are not inspecting their bridges at least every 2 years as required by the standards, and some local governments are not inspecting their bridges at all.
- The initial inventory and inspection of bridges, particularly bridges off the Federal-aid highway system, has not been completed. (See p. 83.)
- Structurally weak bridges are not always being properly closed or posted for lower weight limits to protect against bridge collapses. Even if bridges are properly posted or closed, the postings and closings are often ignored by the public. Bridge weight limit enforcement is limited, and fines for violations are small and ineffective. (See p. 97.)

Federal agencies, such as the Bureau of Land Management, the Forest Service, and the National Park Service, own about 14,000 bridges. These agencies are not required to comply with the National Bridge Inspection Standards for most of their bridges, but they do have inspection programs. However, the agencies were not always complying with their own requirements, and some of the programs did not conform to the national standards. GAO believes that the public should be able to expect the same degree of safety when traveling in national parks and on other Federal lands as the standards provide for on State and local government bridges. (See pp. 100 and 105.)

RECOMMENDATIONS

GAO is recommending that the Secretary of Transportation direct the Administrator of the Federal Highway Administration to assess the States' and local governments' compliance with the National Bridge Inspection Standards and develop a strategy for bringing about full compliance. (See pp. 83 and 97.)

GAO is also recommending that the Congress require Federal agencies that own bridges to comply with the National Bridge Inspection Standards. (See p. 106.)

Other recommendations are noted on pages 84 and 98.

AGENCY COMMENTS AND GAO's
EVALUATION

To expedite report issuance, Senator Sasser directed GAO to obtain only Federal Highway Administration's oral comments. Its officials told GAO that their comments do not necessarily represent those of the Secretary of Transportation.

Federal Highway Administration officials generally agreed with GAO's recommendation to use the latest needs data to allocate Federal bridge funds. The officials said that they will continue to encourage the States to select bridges in the lower range of sufficiency ratings. However, they also said that State and local officials need flexibility when selecting projects, and factors other than the sufficiency rating must be considered.

GAO also believes that selecting officials need flexibility. However, the bridges most in need of immediate attention are not always being selected. The bridge program, which is currently funded at slightly over \$1 billion per year, cannot effectively be directed at all deficient bridges, which the Federal Highway Administration estimates would cost \$41.1 billion.

Federal Highway Administration officials said that they have established an implementation plan and factors such as sufficiency ratings, costs, and benefits have been and will continue to be considered when selecting discretionary projects. They stated, however, that the program has received much congressional direction through the legislative history process.

The 1978 Surface Transportation Assistance Act gives the Secretary of Transportation broad discretion to select projects for discretionary funding. In GAO's opinion, it is the Secretary's responsibility to select the most worthy projects, and the current selection method does not ensure that this is done. (See pp. 38, 61; and 62.)

Federal Highway Administration officials did not indicate agreement or disagreement with GAO's recommendation concerning State and local government compliance with the National Bridge Inspection Standards. The officials commented on the items that GAO said should be considered during development of a strategy for bringing about full compliance. (See pp. 84, 85, and 98.)

Federal Highway Administration officials' comments on GAO's other recommendations are contained in the body of this report. (See pp. 38, 39, 40, 85, 86, 99, and 106.)

Senator SYMMS. I have another meeting shortly after four, so I would hope we could expedite the hearing. I would just say to all the witnesses we are pleased to have you here. We are delighted to have your testimony. There may be some questions that we would like to submit to you that could be answered in writing. It might make it easier for all concerned. That could be added to our record if that would be satisfactory with the witnesses, and it would somewhat expedite our hearing process.

The first witness is from my home State, Mr. Darrell Manning, director and chief executive officer of the Idaho Department of Transportation; and then Mr. Bob Ferris, commissioner of the Tennessee Department of Transportation, who is accompanied by Clellon Lovall; and then Tom Larson, secretary of the Pennsylvania Department of Transportation; and Jack Freidenrich, director of engineering and operations, New Jersey Department of Transportation.

Gentlemen, please come forward. I want to assure all the witnesses that their entire statements will be printed in the record.

STATEMENTS OF DARRELL V. MANNING, DIRECTOR AND CHIEF EXECUTIVE OFFICER, IDAHO DEPARTMENT OF TRANSPORTATION; BOB FARRIS, COMMISSIONER, TENNESSEE DEPARTMENT OF TRANSPORTATION, ACCOMPANIED BY CLELLON LOVAL, STRUCTURAL ENGINEER; THOMAS LARSON, SECRETARY, PENNSYLVANIA DEPARTMENT OF TRANSPORTATION; AND JACK FREIDENRICH, DIRECTOR, ENGINEERING AND OPERATIONS, NEW JERSEY DEPARTMENT OF TRANSPORTATION

Senator SYMMS. Darrell, we are delighted to have you and your colleagues from the other respective States here. Since this is kind of an Idaho hearing this afternoon, we will start with Idaho.

Mr. MANNING. Thank you.

Mr. Chairman and members of the committee, my name is Darrell Manning and I am the director of the Idaho Transportation Department.

The bridge replacement and rehabilitation program is extremely important to the State of Idaho. Its continuation is essential.

I would like to summarize and paraphrase my testimony. I will cover each of the eight items outlined in Chairman Symms' invitation to testify. We have reviewed the GAO report entitled "Better Targeting of Federal Funds Needed to Eliminate Unsafe Bridges" and I will comment on its recommendations in my testimony.

The first issue, bridge apportionment formula. We support the adoption of an apportionment formula. If a formula is adopted it should include transfer flexibility between this and other programs to accommodate those states whose bridges are in relatively good condition because of past improvement program.

We also support retention of the discretionary provision as a source of funding for those very costly structures which could not or would not be financed by any other means.

The second issue, relationship of State and local governments. We believe all Federal-aid funds to local units of government should be channeled through the States.

Issue No. 3. We believe the project selection process in the State of Idaho has been applied in a consistent manner and has recognized the correct order of priorities. Idaho's three major bridges funded under the discretionary program have sufficiency ratings of 2.6, 2.9 and 8.2.

We believe that the GAO report does not adequately recognize the need for flexibility in project selection. The GAO recommendation to lower project eligibility requirements could tend to limit lead time for development of bridges that are needed to be replaced within the next 10 years.

Issue number four, Federal participation in replacement and rehabilitation of off-system bridges. Although the Federal interest in off-system bridges may be less compelling than other programs, we believe that Federal support should not be abruptly withdrawn. We strongly recommend that support for any ongoing Federal program not be withdrawn suddenly.

Idaho has complied with State and National bridge inspection standards. A recent report by the Federal Highway Administration concludes that the state has a very effective inspection program. All local units of government which do not have inspectors can obtain assistance from the State of Idaho, from the certified state inspectors or by certified consulting engineers.

One recommendation of the Federal mandate review recently completed by AASHTO indicates that the states should be given more flexibility in the bridge inspection program, especially for new, previously inspected bridges.

Item No. 6. We concur in the GAO recommendation that bridges owned by Federal agencies comply with the national bridge inspection standards.

Item No. 7, status of on-system and off-system inventories. In Idaho all bridges have been inspected and are on the inventory.

In the matter of future funding of the bridge program, we do not believe that the present level of funding for the bridge program is adequate for replacing those on-system and off-system bridges within the remaining 10 years of their lives. However, we also believe that the program is relatively balanced with other noninter-state highway programs which are also underfunded in terms of needs. The future funding level should be periodically adjusted to compensate for inflation.

If any highway programs are turned back to the States in the future, we strongly recommend that highway funds be kept separate from funds for other programs. We support the concept of user taxation to support highway programs and are concerned that those tax revenues would be lost if their identity were combined with other programs.

In conclusion, we believe that providing adequate highway transportation is a proper role of government at all levels. Economic recovery will be related to the degree that we provide highway service, and at the present time we are losing ground in providing good highways. We need to reverse that trend.

Mr. Chairman, I would be happy to answer any questions you may have.

Senator SYMMS. Thank you very much for an excellent statement, Darrell. I think I would prefer to go through all the statements and then ask questions.

Could we hear from Bob Farris. Bob, when you hear the bells go off, I will recess the hearing, go to vote, and then be back.

STATEMENT OF BOB FARRIS

Mr. FARRIS. Thank you, Mr. Chairman, and I thank you for this opportunity to express to you the views of the Tennessee Department of Transportation concerning the highway bridge replacement and rehabilitation program. We definitely feel this is one of our most essential transportation programs, and it should be expanded and expedited in every way possible.

We realize there have been some problems in locating, evaluating, prioritizing and developing programs and schedules for replacement of every unsafe bridge throughout the Nation. There are always some problems associated with such a massive undertaking. However, I believe the problems have been relatively few compared with the volume of work required to get the program underway. Some improvements in the way the program is administered are in order. And I certainly do not see the need for all of the changes proposed by S. 1649.

Provisions contained in this bill provide for the traditional bureaucratic approach to solving relatively minor state and local problems by directing the Secretary of Transportation to proscribe and make mandatory detailed rules and regulations to be followed by the States, covering every aspect of both the administration and engineering required to carry out the program. As usual, this approach, in my judgment, would not be effective. Instead it will reduce the effectiveness of the program by adding much unneeded and unwanted redtape and greatly increasing the cost of administering the program.

Instead of the traditional bureaucratic approach, I would like to make some suggestions we feel would improve and expedite the program, and at a reduced cost to the taxpayer. Our approach would increase the flexibility of States and local governments in administering the program rather than completely eliminating the flexibility we now have under the present law, as would be done by S. 1649. I will attempt to keep my recommendations in the context of issues as outlined in the chairman's letter of January 29.

Under the bridge apportionment formula, Congress should apportion the bridge funds to the States as an annual block grant on an equitable basis based on total bridge needs in each State, including all deficient bridges both on-system and off-system, based on the State's current total bridge needs inventory which is updated and reported every 2 years. This would be similar to the method that has been successfully used in apportioning interstate funds to the State for the interstate program. A BRE program, if you please, as compared to ICE.

Regarding the relationship of State and local governments for the distribution of Federal funds within the State, the problem must be addressed as a problem of safety and a problem of integrity of our total road system. It is our opinion that the bridge re-

placement funds should not be allocated to specific systems within a State but instead be made available to the State as one bridge replacement fund to be applied to all bridges on the basis of need regardless of what system a bridge might be on.

The arbitrary percentages established for each system by the present legislation can in some cases cause delay in replacement of some of the most critically needed structures within a State just because of the system designation. The needs by system can vary greatly from State to State. Also, the working relationship between the States and local governments and the jurisdictional authority for bridges is unique to each State. Therefore, a high degree of flexibility must be retained in this area.

In Tennessee over 97 percent of the bridges required to be closed are off-system bridges. This being the case, the replacement of many of these off-system bridges cannot be accomplished because of the requirement in existing law that not more than 35 percent of the funds available to the State can be used on off-system bridges. In order to be consistent with the stated intent of the bridge program, this requirement should definitely be changed.

Project selection under the discretionary program. We feel the discretionary program, Senator, should be discontinued and that the replacement of all deficient bridges should be handled in the same manner. However, authority should be given to the Secretary to respond to emergencies when created by the collapse of a major structure or other catastrophic occurrences for which there is no other available source of funds.

Would you like me to stop there?

Senator SYMMS. The committee will stand in recess for about 10 minutes, then I will return.

[Brief recess.]

Senator SYMMS. We will resume where we left off.

I think, Mr. Farris, you were rudely interrupted by the Sergeant at Arms of the Senate when he rang all those bells. With his apologies, would you please go ahead. What page are you on?

Mr. FARRIS. This is my summary and I am not sure you have a copy of my summary. I was in the middle of responding to the discretionary bridge matter, and I will continue.

We would, however, if the discretionary program is retained, recommend the legislative history no longer be considered in bridge selection and that all qualified candidate bridges be prioritized according to their load-carrying capacity.

Appropriate Federal participation in the replacement and rehabilitation of off-system bridges. While we might prefer 90/10 or 100 percent funding, trying to be realistic we feel that the 20 percent matching requirement by State and local government perhaps should be retained. However, States and local governments should be given the option of an in-kind match on a program basis in lieu of the current dollar match on a project-by-project basis. In Tennessee there have been many instances where the replacement of critically needed bridges has been delayed or not accomplished at all because the local governments were unable to provide the local match or disagreed with the State priorities, which were based on Federal inspection data. This problem would be greatly reduced if an in-kind program match were permitted.

The in-kind program match should allow States to advance the program with available State and local resources and then receive credit against matching requirements for Federal-aid bridge program funds. The only Federal requirement for receiving in-kind credit for State and local bridge replacement expenditures should be that upon completion of the bridge, it is no longer categorized as deficient under the AASHTO bridge standards and the expenditures for the bridge work being subject to Federal audit. This would appear to be appropriate, especially when local agencies are involved.

The question involving State compliance with national bridge inspection standards, it is our opinion that the Secretary already has sufficient authority to ensure compliance as long as it is uniformly administered throughout the States. Tennessee is already in compliance.

In regard to the need for bridges owned by Federal agencies to comply with the national bridge standards, we feel all bridges open to public travel should be subject to complying with national bridge inspection standards, and that additional funds should be provided to the Federal agencies for their replacement of deficient bridges in a timely manner.

The status of on-system and off-system inventories, the inventory has been completed in Tennessee, including all bridges under the jurisdiction of Federal agencies. If the distribution of funds to the States required that a complete and accurate inventory of needs be certified to the Secretary every 2 years before the State could receive its share of the bridge funds, this certainly would provide an incentive for each State to complete and keep current their inventory of bridge needs.

Appropriate future level of funding for the bridge program. We feel the funding level contained in the current law was adequate for the program initially. However, since the States have completed the inventories and have gotten somewhat cranked up to undertake a massive bridge program, we feel the funding should not be accelerated in order to eliminate in a timely manner the thousands of unsafe bridges that have been identified throughout the Nation.

In Tennessee we have recently gotten our bridge program geared up at a pace to use all bridge funds allocated to the State and are now moving toward expanding our program with an additional 100 percent State-funded bridge program. However, we find ourselves in a dilemma from time to time regarding all of our Federal programs because of the obligational authority imposed on the total expenditure of Federal-aid highway funds. The States have to make a choice as to which program will be reduced to comply with reduced obligation authority and how much the reductions in each program will be. I am sure many States, including Tennessee, have in many cases placed priority on completing the Interstate System and other high priority projects which has resulted in reduction in the utilization of bridge funds. This would not be the case if Congress could see fit to remove the bridge program from the obligation authority controls.

Mr. Chairman, this concludes my statement, and I will be available for questions.

Senator SYMMS. Thank you very much for a very thorough statement, Mr. Farris.

We will now hear from Mr. Tom Larson from Pennsylvania. Welcome back to the committee. I think we had you here last year.

STATEMENT OF THOMAS LARSON

Mr. LARSON. Thank you very much. My name is Thomas Larson. I am the secretary of transportation for the Commonwealth of Pennsylvania.

I would like to summarize my remarks, and to begin I will go over some of the numbers that we face in Pennsylvania.

We have 56,000 bridges on the local and State-owned transportation system in Pennsylvania. That is approximately one bridge for each 2 miles of highway. If you consider the over 20-foot bridge category, we have approximately 21,000 of these. If you break these down still farther you find about 12,000 are on the Federal-aid system and about 9,000 are off-system.

If you look now at the Federal-aid system, 1 of 6 of these bridges is deficient—1 of 6, or roughly 2,000 out of 12,000 deficient. If you look at off-system bridges, 1 of 3 are deficient, or about 3,000 out of 9,000. So this gives you something of the dimension of the overall bridge problem in Pennsylvania.

Looking at our program for remedy, for 4 years we have about 350 bridges on our remedial program at a cost of about half a billion dollars. So looking at our situation in Pennsylvania, we face an enormous unmet need.

Turning then to broader issues, we see that there are at least two classes of key issues. Perhaps one would be in the area of economics and the other in a more technical kind of arena.

We believe that bridges are a major impediment to transport in Pennsylvania, particularly transport by truck. For the Northeast States, approximately 75 percent of all freight that originates and terminates in the region moves by highway. These economic impacts have led us to believe that careful targeting, as suggested by the report that is under consideration here, is imperative.

To give one example. In Tioga County, which is one of our northern tier counties, we worked with the agribusiness community and identified 14 bridges which were absolutely essential for milk hauling purposes. Milk is now being picked up by heavy tankers. We provided 100-percent State money to rebuild 14 deficient bridges so the milk industry in Tioga County could continue.

On the matter of targeting, in the GAO report there are some 10 States that are identified, and it is noted that the percentage of bridges with sufficiency ratings less than 20 that were selected for funding was 40 percent. In Pennsylvania our comparable percentage is significantly higher at 61 percent. We believe that we are doing the job of targeting our limited resources on bridges that have very low sufficiency ratings. But we would add that economic priorities, safety, schoolbus travel, and a lot of other facts have to be put into that equation.

We support the notion of a Federal bridge program because we believe that its contribution to economic recovery in this country is absolutely essential. We cannot see a solution to a \$41 billion prob-

lem without the Federal participation that we have had, and almost certainly at an escalated rate. We do recognize there should be a phase-out of Federal programs when the mission has been accomplished.

On the matter of sufficiency ratings, I have one other example I would like to use, and that relates to discretionary bridges.

We feel that the discretionary program should be retained. One of our bridges that has been funded under the discretionary program has a sufficiency rating of 2. As a matter of fact, of the 3 we have had in Pennsylvania, 2 of them had ratings of 2, 1 had a rating of 15. The Beaver Falls/New Brighton Bridge, one of these three bridges, was built in the 1890's as a railroad bridge, converted to a highway bridge in 1927, again, has a sufficiency rating of 2. This bridge was load limited a few months ago. In order to keep it open for commercial traffic we put several hundred thousand dollars of State emergency money into it to provide for deck replacement. That bridge, had we not taken that action, would have contributed \$14 million in excess cost to the 2,400 trucks a day that cross it, serving the industries of Babcock and Wilcox, J. & L. Steel, and ARCO Polymers chemicals, in addition to lesser industries. In other words, that bridge is absolutely essential to the economy in the Beaver Falls/New Brighton area and we are recognizing it with emergency action and repairs.

On the matter of the formula for apportioning bridge program funds, we believe that it should be based on an up-to-date inventory. Pennsylvania has such an inventory. We have a 100 percent of our State bridges inventoried to Federal standards. Our inspectors are well qualified persons. We will approach 90 percent of all local bridges within just a few months. We think that data should be incorporated, absolutely. We think the apportionment should, however, give credit to unique State conditions and should not be based on nationwide averages. We feel that our conditions, our costs in the Northeast are unique, and these in fact must be recognized in the apportionment.

To sum up then, we believe that the Federal bridge program will make a substantial contribution to the economic recovery of this country. We believe that in the targeting of these moneys economic impacts must be considered along with technical criteria such as bridge sufficiency ratings. We are very much concerned that since this Federal bridge program has such a potential in the country that it be retained and funded at a responsible level. We finally conclude that the apportionment formula should be based on up-to-date inventory data and should consider local conditions, local unit costs rather than nationwide average unit costs.

I hope this information will be useful. Again, we will be pleased to answer questions.

Senator SYMMS. Thank you very, very much.

Jack Freidenrich from New Jersey, please go ahead.

STATEMENT OF JACK FREIDENRICH

Mr. FREIDENRICH. My name is Jack Freidenrich and I am director of engineering and operations for New Jersey's Department of Transportation. I also serve as the chairman of the American Asso-

ciation of State Highway and Transportation Officials' Subcommittee on Bridges and Structures. The membership of this subcommittee consists of the chief structural engineer from each of the 50 States.

Mr. Chairman, I especially welcome your invitation to address your Transportation Subcommittee on the issue of bridges in this country. In light of the President's New Federalism proposal and the need for new authorization legislation, the time is highly appropriate to review the bridge problems facing the Nation's transportation system and to seek creative methods by which we can address these problems.

Your invitation indicated your subcommittee's special interest in several issues which were the subject of a recent General Accounting Office report entitled "Better Targeting of Federal Funds Needed to Eliminate Unsafe Bridges."

The GAO report makes a number of positive recommendations, but it also makes some recommendations that are troublesome. The report argues that many of the bridges currently receiving Federal funds are often not in the worst of conditions, and infers that the States and local governments are not putting the Federal funds to their best use. Thus, they recommend more restrictive eligibility criteria that concentrate on bridges in most need of attention. At first reading, the recommendation appears reasonable, but there are glossed over issues and hidden assumptions in the recommendation. The report oversimplifies the bridge selection process at the State level. In my own State, New Jersey, we have a bridge over the inland waterway which is in desperate need of reconstruction, having a sufficiency rating of 4. However, the bridge spans a navigable waterway, impacts wetlands, is in close proximity to a bird sanctuary and may have historical significance. Addressing each of these characteristics, including consultation with Federal and State agencies, as well as seeking public input in order to minimize potential adverse impacts is a very time-consuming process. Thus, while this process is being pursued, other bridges with a higher sufficiency rating, but which can more readily be progressed to the construction stage, are being funded, and properly so.

Obviously priority should be given to replacing or rehabilitating the worse bridges. However, such prioritization must give due consideration to putting the available funds to work as soon as possible.

With regard to the first issue in your letter, the bridge apportionment formula, AASHTO strongly supports the use of latest available needs data, including off-system bridges, to annually revise the allocations to the States. AASHTO continues to support an apportionment formula based on the square footage of deficient bridges, both off-system and on-system, multiplied by unit costs on a State-by-State basis.

On this latter point, I must express concern regarding the apportionment formulas in your committee's bill, S. 1024, which includes a proposal to use average national unit costs. Such a proposal is inconsistent with our efforts to realistically assess the bridge replacement and rehabilitation needs of each State, and to apportion available funds in a manner which will allow each State to address those needs.

The second issue in your letter concerns the relationship of State and local governments in the distribution of Federal funds within the States. The GAO report raised the issues of limiting 35 percent of Federal and State allocations to off-system bridges, FHWA's lack of definition for "fair and equitable distribution," and some local concerns about not being consulted. AASHTO supports the GAO recommendation that States be provided the flexibility to allocate more than 35 percent for off-system bridges. The on-system vis-a-vis off-system bridge needs can vary significantly from State to State both in number and transportation system impact, and the States should have the flexibility required to best meet their needs. However, we are opposed to an attempt to define "fair and equitable." It is our judgment that this issue is either legislative or judicial and not a regulatory issue. With respect to the local concerns raised in the report, we support the concept of the FHWA division office working with the State and monitoring State allocations to local jurisdictions in an attempt to resolve such differences as may exist.

Concerning the issue of project selection under the discretionary program, AASHTO is in agreement with the GAO's recommendation that a formal selection process be developed for discretionary projects which will properly weigh factors such as sufficiency ratings, costs, and benefits. Obviously this entire issue would become moot if funding became available at a level compatible with the needs.

The next issue of interest to your subcommittee is the Federal role in the replacement and rehabilitation of off-system bridges. The GAO report States that the 200,000 bridges, or 40 percent of the Nation's total, need to be replaced or rehabilitated at a cost of \$41.1 billion in 1980 dollars. Furthermore, the report provided striking examples demonstrating the waste and disruption that closed or reduced-load bridges are having on interstate and intrastate commerce, as well as indicating that obsolete bridges were a primary cause of 27,245 fatal single-vehicle accidents in 1979. These figures indicate a massive problem throughout the country and as such need to be addressed at the Federal level. The magnitude of the problem in conjunction with the safety and commerce issues argues for a Federal role at this time. Once the problem becomes more manageable, the Federal role should be reexamined.

The subcommittee's fifth issue is State compliance with national bridge inspection standards. AASHTO is in agreement with the GAO recommendation for an assessment of State and local governments' compliance with national bridge inspection standards, and as part of that assessment a determination whether any of the requirements should be strengthened or lessened, such as the 2-year reinspection requirement. AASHTO's recommendations for bridge reinspection are twofold. First, the reinspection cycle should be a function of age and condition. Second, the reinspection schedule should be a graduated cycle. Thus, some bridges in very poor condition will require constant monitoring until adequate resources are available for replacement or rehabilitation, while newly reconstructed or rehabilitated bridges may only need to be reinspected every 3 or 5 years. It is our judgment that these recommendations, if adopted, would provide for a more effective and efficient use of

scarce funding resources. Under any circumstances, any determination on strengthening or lessening current requirements of national bridge inspection standards should be accomplished only after thorough consultation with the chief bridge engineers from each of the States. In that regard, the AASHTO subcommittee on bridges and structures will be pleased to serve as the consultation vehicle in such an effort.

AASHTO further agrees that the States should continue to be the catalyst for the accomplishment of off-system inspections. The manner in which this is achieved must, of necessity, vary from State to State as a function of their respective statutory relationships with political subdivisions. We are opposed to the assessment of penalties or other punitive actions against State government because such a proposal can only be counterproductive and further exacerbate a difficult situation where and if it exists. Certainly AASHTO supports increased efforts to insure that the national bridge inventory is complete, accurate and current, and that inspection procedures and bridge ratings are consistent. We also agree that the development of a standard for the timely processing of inspection data would be useful, providing the resulting standard is compatible with the enormity of the problem facing us. Here again, we believe that the AASHTO Subcommittee on Bridges and Structures can play a vital role in the development of such a standard.

With regard to the subcommittee's sixth issue, the need for bridges owned by Federal agencies to comply with national bridge inspection standards, AASHTO agrees that the public interest requires that such bridges should be subject to all of the requirements of the bridge replacement and rehabilitation program, including inspection and monitoring in accordance with the national bridge inspection standards.

The issue of the status of on-system and off-system bridge inventories has been addressed in part earlier in my testimony. AASHTO believes that State and local governments have made remarkable progress in inventorying the Nation's bridges, notwithstanding not having achieved 100 percent compliance with existing standards. When established standards are impractical, noncompliance with those standards is guaranteed. AASHTO believes that the establishment of existing standards was a good first effort, but as indicated before, a reassessment of those standards is timely with a view to strengthening or lessening as found appropriate based on the actual experiences by the States in the last several years.

It should be noted that compliance with any standard requires that the necessary resources be made available. This leads us into your final issue, the appropriate future level of funding for the bridge program. Mr. Chairman, my subcommittee was disheartened by your subcommittee's actions in S. 1024 that would have decreased the present authorization by \$200 million and only authorizes \$1.3 billion for the fiscal years 1984 through 1986. The level of fiscal year 1981 was \$1.3 billion—thus, the levels proposed in your legislation failed to keep pace with the costs. We would recommend that the bridge program be authorized to at least the \$1.5 billion

level if we are to make any inroads in dealing with the problem before us.

Mr. Chairman, the above completes AASHTO's testimony on the issues of special interest to your subcommittee. Before concluding my testimony, however, I would like to direct your attention to one other issue presently being considered by the AASHTO Subcommittee on Bridges and Structures. A recent survey by our subcommittee's technical committee for the Bridge Replacement Surveys and Inspection Standards has led to the conclusion that many bridge rehabilitation projects, particularly those on routes with low traffic volumes, would be more cost-effective if lower geometric standards were applied to them. The cost of widening certain types of structures, such as through trusses or arches, may exceed the cost of replacement. There are many instances where the need to correct structural problems is urgent, but the need for widening to standards used for new construction is not supported by accident history.

In many cases the approach roadways will remain as narrow as the existing bridge, so that no particular safety problem is presented, even though the bridge width is not increased. Some exceptions to the general rule that all deficiencies, both structural and functional, must be removed by a project funded with bridge replacement and rehabilitation money are made, but the frequency and circumstances of these exceptions vary widely throughout the country. Greater consistency and better use of funds could be achieved by redefining geometric standards for rehabilitation projects. Under the existing general rule, quite often quickly implementable structural deficiency remedies experience delays because the need to include remedies for functional deficiencies often places the project in a category which requires lengthy environmental studies. I have recently asked the chairman of the AASHTO Subcommittee on Design, who within the AASHTO organization has the responsibility for recommending geometric standards, to consider preparing revised geometric standard for bridge rehabilitation projects. We are hopeful that this effort will receive support of the various agencies and organizations who have an interest in such standards.

Mr. Chairman, this concludes my testimony. I would be pleased to try to answer any questions which you or your members may have.

Senator SYMMS. Thank you very much. And I want to thank all of you for making the effort to help us with the future to the bridge program by your testimony.

I do have a couple questions I would like to ask. I guess I could start on the end with you, Mr. Farris. You stated that funding for the bridge program should now be accelerated. Did you mention the funding level or at what level we should set it? Do you have a recommendation on that?

Mr. FARRIS. Relating to the total program or just to Federal bridges?

Senator SYMMS. To the total bridge program. But what I guess I am getting at, how far do you think the Federal program should be, and if the Federal program is not able or does not choose to increase the level, how far do you think the State governments are prepared to go?

Mr. FARRIS. That is an excellent question. When you look at the total problem, of course, in our State it is around a \$1 billion total problem, nationwide about a \$41 billion problem. At the current levels we are looking at, if all prices remain constant, a 40-year solution to the problem, assuming no bridges were added to the list. So we would really never finish in the process we are following. So let's assume there are no other Federal dollars available. What should be made available to us is some continuity of program that we can reasonably participate in and prefinance at our level. This will help us accelerate it. In Tennessee we are trying to make an acceleration of the program by committing over the next 2 years about \$20 million of our own money to try to come in and fix those smaller bridges which are presently posted for closure in Tennessee, about 435 of them. I requested when I did that that I get some continuing match preference for that expenditure. Under the present legislation that is prohibited. In my testimony I stated I thought that ought to be considered. This is one way you can help us work together to make those available funds that we have available to us perhaps be more effective.

Obviously if we can accelerate the funding base we get a movement in a more reasonable time frame that we can foresee the problem can be corrected. That is why I suggested establishing where we are headed with the program, because if not, it can go on forever. If there is some way we can come to some definable parameters, starting here and arriving here, we should have our bridges back in some reasonable condition across our country, and then enforce as best we can some continuing maintenance level.

When you look at my problem in Tennessee, it was the problem of lack of maintenance that existed on off-system bridges. For my bridges on-system that is not where the major problem lies. It is the county roads. Most of those, particularly in my State, are in the low-income, low-population, rural counties, and they are going to stay there for a long time unless I use State resources and, when available, whatever Federal resources are presented to us.

We are requesting we have (1) more flexibility, (2) that the program have some long-range continuity that I can go in and prefinance some of my needs. We just need to accelerate the program. I feel I am running in place. In Tennessee we are not making progress on resolving the problem.

Senator SYMMS. Thank you very much.

Would you want to comment on the funding levels? Do you believe the States would be willing to pick up more if the Federal Government does not have the available funds?

Mr. MANNING. Mr. Chairman, as I stated in my testimony, I believe that the bridge program is funded at about the same level relative to need as our primary, urban and other noninterstate funding areas. You can use primary, urban and secondary funds to build bridges, and we do in our State. So I don't think you are looking at a 41-year solution. We are actually making greater progress than that. So I think at the funding level of the total program we are relatively in balance.

Senator SYMMS. In balance.

Mr. MANNING. Yes, sir.

Senator SYMMS. Either of you other two gentlemen want to comment on that question?

[No response.]

Senator SYMMS. Then I assume you basically agree in general with what they both stated.

This is not part of what we are intending to ask about in this hearing, but I just ask you, when the question comes up on the Federal fuel users fee, would you have a preference to the Federal fuel users fee? Would you support seeing us increase that, say, in terms of approximately twice as much as it is now? Mr. Farris?

Mr. FARRIS. Would I support an increase? I certainly will.

Senator SYMMS. And Darrell, I see you nodding your head.

Mr. MANNING. The need is certainly there, Mr. Chairman.

Mr. LARSON. Absolutely.

Mr. FREIDENRICH. I agree.

Senator SYMMS. I did have the opportunity to talk to one of the Governors out in the West, not from Idaho but from Montana, right before Christmas, just in a casual conversation, and he was mentioning the new concept. He wasn't so sure he wouldn't rather just raise the money at home. I have felt that we really have developed a problem in the United States with our bridges and our roads and how they relate to each other. We built so many good ones it costs more to keep them up than to build them. So I am glad to hear you want to continue that. I think that issue will come up, and I think that is really the basic problem. What you have all said, if I have the picture right, you could solve the problem if somebody could deliver a little more money, and you don't need additional redtape—you particularly emphasized that, Mr. Farris; any legislation that deals with bridges, you would emphasize more money; and essentially the program is all right. Is that an overgeneralization, or do you generally agree?

Mr. MANNING. Mr. Chairman, I think if you focus on flexibility between all programs the States would be better able to take care of the problems that exist in their particular States.

Senator SYMMS. In other words, if they want to transfer some money out of the secondary roads to a bridge somewhere, let them do it.

Mr. MANNING. Or vice versa.

Senator SYMMS. Correct, right.

Apart from the Federal bridge program how large a State-only-financed bridge program do each of you have?

Let's start on the end down there. We will let New Jersey start off this time.

Mr. FREIDENRICH. In New Jersey, in addition to the bridge replacement and rehabilitation program, as Mr. Manning indicated he does in Idaho, we also use other categorical funds to fund bridge replacement and rehabilitation. We over the years have had limited 100-percent State funding for the bridge program simply because that kind of funding just hasn't been available. Our State is presently and our department is presently examining very carefully and in order to make recommendations for a continuing stable, predictable funding mechanism, and hopefully in the near future we will be making those recommendations to our legislature.

Mr. LARSON. We have a very extensive State-only system in Pennsylvania. As a matter of fact, we have about 20,000 miles that are not in any way connected to Federal-aid programs. So we have a very substantial program. The most useful number perhaps would be a number that suggests that we spend about \$100 million a year on bridges and that our overall State-versus-Federal ratio is about 50-50. In other words, we do build bridges with 90-10 money, with 75-25 money, with 80-20 money and with 100-percent State money. So if you take the overall picture we are using about half Federal funds and half State funds.

Senator SYMMS. Darrell, would you want to comment?

Mr. MANNING. Mr. Chairman, in the past we have had a State-funded construction program of about \$12 million. At the moment the State-funded construction is zero. The local government is spending in the vicinity of \$5 million in that area.

Senator SYMMS. Thank you. Mr. Farris?

Mr. FARRIS. As I stated to you, Mr. Chairman, Tennessee is undertaking presently an accelerated program in which we are trying to commit over and above the regular dollars we spend both in primary funds and interstate funds and Federal-aid secondary funds in building bridges. We have three major bridges under construction that are funded through the discretionary program presently in Tennessee. But we are committing an additional \$20 million over the next 2 years toward this program. I have got to identify this as the No. 1 transportation problem we have in Tennessee, and we were fortunate enough this year to have about \$15.2 million in unanticipated revenue show up in Tennessee, which we are quite delighted to be in that posture. But to emphasize to you our concern for our bridge program, we are committing \$12.2 million of that this fiscal year toward a 100-percent State-funded bridge replacement program, and committing another \$10 million in next year's budget toward that same emphasis. So a total of \$22 million over the next 2 years we will put in a 100-percent State-funded project. This is all in addition to those we would normally be building anyhow and our continuing maintenance program on bridges.

Senator SYMMS. Thank you very much.

The GAO report got into the question about the accuracy and reliability of the inventory data and some of the inconsistencies in bridge inspection and rating, and they also coupled with that that they didn't think some of the bridge inspectors were qualified to pass inspection. Do you perceive that as a problem?

Mr. FARRIS. Not at all.

Mr. MANNING. Not at all in our State.

Mr. FREIDENRICH. We do not have that problem in New Jersey. All of our inspectors are qualified. In New Jersey the county engineers are responsible for the bridges on the local system, and by law each county engineer must be a professional engineer. So the bridge inspection teams do meet all of the requirements.

Senator SYMMS. Thank you. I have some other questions that deal with that. We may address them to you; it would take brief answers.

I think I get the general agreement here that most of you didn't disagree with that statement, that there isn't anything that plenty of capital investment in bridges wouldn't solve as far as our prob-

lem. I did want to get into one other question about the apportionment formula.

Under the existing apportionment formula each State's need is calculated as square footage of deficient Federal-aid bridges multiplied by the State's average bridge construction cost per square foot. The cost per square foot varies among States, ranging from a low of \$31 to a high of \$157. What accounts for that variation?

Mr. FARRIS, do you want to start? Would any of you particularly want to comment?

Mr. LOVALL. Mr. Chairman, Clellon Lovall. I am the structural engineer for Tennessee.

The primary difference is the widespread difference in labor and construction costs that exist across the Nation. For the most part every bridge engineer designs bridges that go into the same AASHTO standards. So basically we are all dealing in about the same type of structure for a given situation. So any variation in cost would be directly related to the cost of materials, labor and construction in that particular area.

Senator SYMMS. Is there anything in the requirements that might not be providing an incentive for lower cost construction or do we have requirements built into the law that encourage people to spend more money building the bridges?

Mr. LOVALL. This is a little out of my field, but I have seen some observations that the requirements in Federal law that certain wage rates be paid under certain situations certainly drives up the cost of construction.

Senator SYMMS. Any of the others wish to comment?

Mr. LARSON. The costs are very different and the proposed apportionment would have significant impact. In Pennsylvania we estimate that it would reduce the percentage apportionment in Pennsylvania from 5.78 to 3.85, a very significant impact, and we believe that it is a combination of factors. It is in labor rates that are set at a national level over which we have no discretion, the climate, the heavy truck impacts that we have on some of our bridges that require special treatment, a lot of factors that go into our unique costs. We are very concerned that we not have Federal funding that drives up costs without control. We don't believe that is the case. We are fully willing to look at the control features, but we believe that national averages would simply disadvantage Pennsylvania unacceptably.

Senator SYMMS. Would you care to comment on that?

Mr. FREIDENRICH. Yes. In addition to the different labor rates around the country, the proximity of the construction materials to the site varies significantly from State to State, the traffic conditions under which a bridge must be constructed or rehabilitated is very significant. In a State like New Jersey, which is one of the most densely traveled States in the country, more often than not providing for the safe and convenient flow of traffic through a construction site becomes the overriding need in the development of the plans for rehabilitating a bridge, and the stage construction features of that quite often are expensive but are clearly in the public interest. So we also agree that any apportionment should be based on actual cost State by State, otherwise it would produce a

number which is somewhat fictitious if compared to addressing the needs actually existing in the State.

Senator SYMMS. Let me ask this question another way. We have a \$40-billion bridge problem in the country, and at the rate we are spending money I think that none of us will be around to see that program completed and I don't know how many other bridges will be worn out before we take care of that. What could we do? Would you recommend, if you did have any recommendations, to make it so the incentive is for the State not necessarily to goldplate the bridge? If it is based on if you get more money, you spend more money. My experience has been that most people choose the latter route. Maybe they build a better bridge in some cases.

Mr. FREIDENRICH. I don't believe that is the problem. I think the AASHTO standards are uniform and consistent and each of the bridge engineers designs his bridge to meet those standards. The fact is that each State is faced with different problems in accomplishing their construction simply because of the characteristics of the State. I am sure that Idaho has problems which we in New Jersey never face. But the reverse is also true. And each State needs to be in a position to deal with its unique situation.

Senator SYMMS. Mr. Larson?

Mr. LARSON. Given the needs in Pennsylvania and all the States, the notion of goldplating I think is simply an issue that is past.

Senator SYMMS. Just not there.

Mr. LARSON. Our needs are so great we are doing everything possible to build low cost, efficient, effective bridges. We are not going to goldplate with anybody's money.

Senator SYMMS. Yes, Mr. Lovall.

Mr. LOVALL. The issue of goldplating bridges comes up any time you are dealing in cost. I think all bridge engineers basically deal in two factors they are trying to achieve. One is we furnish the proper load-carrying capability in the bridge to handle the traffic which is anticipated, and one that the bridge be reasonably durable. In other words, we don't want to come back next year and be doing the same thing.

Senator SYMMS. I would like to ask Darrell how did we in Idaho end up doing it so efficiently?

Mr. MANNING. I am not sure we are doing it that much more efficiently, but I realize what you are looking at. We are doing a good job I think and we spent a lot of time at it and a lot of effort trying to make certain that the various costs are comparable. But every time we do build a bridge to full standards we get criticism. For example, the Capital Boulevard Bridge—and you are familiar with that—when they built it at four lanes they thought it would never be needed at four lanes. Now we could use eight on the same bridge. The same thing is true in criticism of every bridge. If you build it for a 40-year or 20-year lifespan, you are building it more than perhaps you need today, but in the long term that saves millions and millions of dollars, and I think you should not get too short in your time frame of looking out for what your needs are.

Senator SYMMS. Yes, sir.

Mr. FARRIS. My comment about permitting in-kind contribution would be a great help toward making our dollars go further. That is what I am doing with my State program in the State of Tennes-

see. When I go to these small counties who lack dollar resources, we are letting them participate in the county by using their county forces to do approach work. And a county in many instances can get right-of-way donated for a bridge, where I have to go under the Federal standards and tell them they can get so many dollars for their right-of-way. That is one incentive. The environmental impact requirements, the 404 permits all contribute to cost of replacing bridges. We have this as a serious problem in the western part of our State where we have a lot of wetlands. When we try to replace or rebuild a bridge in a wetland area that can be strung out for a long period of time by objections from a string of Federal agencies to protect a string of trees, for example. All that contributes to cost. When we look at taking the resources we have and making them go as far as we can, all of these begin to add up as total cost packages. I found I can take a \$20 million problem in Tennessee with 100 percent State dollars, and we are forecasting we can do that for somewhere around \$18 million or less, and may even get less than that, in trying to get these bridges replaced, as I relieved myself of some Federal requirements.

Senator SYMMS. One last question, and we have another vote on. So when we finish this one we will let this panel go. I appreciate your patience. We probably will have some other questions and we will try to work through AASHTO.

But the GAO report also made a charge that the bridges are not being reinspected every 2 years as required by national standards. Do you agree with this, and if so, is the requirement unnecessary for every 2 years? Any comments that you want to make? Why don't we start at the end and work down.

Mr. LOVALL. In Tennessee in our Federal-aid program we are into our sixth cycle of inspection as outlined in the Federal program. We are doing at least every 2 years. On the off-system program we are about halfway through our second cycle, which is right on target with the legislation that was passed.

As was outlined by Jack Freidenrich earlier, we do feel there are certain structures that it is not necessary to make the hands-on, indepth inspection required by the Federal law every 2 years. So those should be stretched out. The balance of that, there are structures which, as the Commissioner indicated, we inspect on a 3-month basis, those that are in serious condition and need watching out for more often than that.

Senator SYMMS. Yes, we have one right here on the Potomac called the Woodrow Wilson Bridge that needs to be inspected every 30 minutes. They had a hole up there the other day you would drive a car through.

Darrell, do you want to comment on that?

Mr. MANNING. Mr. Chairman, we agree with what has just been said, and we are meeting the inspection scheduled.

Mr. LARSON. We agree and are meeting the inspection schedule.

Mr. FREIDENRICH. As my testimony indicated, we think that the 2-year cycle across the board needs to be reexamined.

Senator SYMMS. Flexibility is what you are all saying, and common sense.

Mr. FREIDENRICH. Exactly.

Senator SYMMS. Thank you all very, very much.

I am going to recess the committee, and when I return Henry Eschwege will be our next witness.

Thank you very much, gentlemen.

[Brief recess.]

[Responses to written questions follow:]



State of New Jersey
DEPARTMENT OF TRANSPORTATION
1035 PARKWAY AVENUE
P.O. BOX 101
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Anne P. Canby
COMMISSIONER

March 2, 1982

Ms. Jean Schrag
Professional Staff Member
Committee on Environment & Public Works
4204 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Ms. Schrag:

I am pleased to offer the following responses to the Subcommittee on Transportation's questions which were sent to me by Senator Steve Symms as an attachment to his February 16, 1982 letter.

- (1) The GAO report cites problems with railroad bridges and toll bridges complying with inspection requirements. Is this a problem in your State?

We have encountered some resistance by the owners of railroad bridges and bridges on toll facilities in making inspections of their respective bridges in accordance with National Bridge Inspection Standards. It should be noted, however, that railroad-owned and toll agency-owned structures have been and continue to be inspected at required intervals; however, the reporting systems utilized are not consistent with current NBIS data requirements. We have been able to reconcile this matter with several of the agencies and expect to totally reconcile it shortly.

- (2) How long does it take for data on inspection reports to be entered into the inventory? Do you believe there should be a specific requirement that information is updated on the inventory within a certain time period?

For various reasons, inspection data entry into bridge inventories has varied from a few weeks to a matter of months where complexities are involved. We believe that the development of a standard for the timely processing of inspection data would be useful, provided the standard is reasonable. The AASHTO Subcommittee on Bridges and Structures would be pleased to participate in the development of such a standard.

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- (3) The cost of bridge inspections varies significantly from State to State. What do you believe causes this variation?

The cost of bridge inspections would be expected to vary from State to State due to factors such as the type of structure involved, the location and accessibility of the structure, the physical problems associated with the inspections (traffic control, etc.), the repetition of structural detail, the age and condition of the structure, the nature of unique problems encountered, established regional labor pay scales, the amount of analysis required, and the in-depth reporting required.

- (4) According to the GAO report, by December 1980, the States had submitted for discretionary bridge funds 192 bridges at a total cost of \$5.3 billion. Given that \$200 million is annually available for this program, how do you believe bridges should be selected for discretionary funds?

A formal selection process for choosing bridges to be funded with discretionary funds should be developed which will properly weigh factors such as sufficiency ratings, costs and benefits.

- (5) Apart from the Federal Bridge program, how large a State-only financed bridge program do each of you have?

During the next fiscal year, we expect to have a State-only financed bridge program of approximately \$20 million for the rehabilitation of vehicular and railroad bridges.

- (6) In some cases local governments are responsible for inspecting certain bridges. What would be the advantages and/or disadvantages in requiring the State government to inspect all bridges?

The advantages in requiring State government to inspect all bridges would be the vesting of the total responsibility with a single agency that has the expertise and organization to accomplish the task. However, in many States financial, jurisdictional, legal and other related problems would argue against such a procedure. In New Jersey, the County Engineer in each of the 21 counties is responsible for all of the bridges in his county other than those on the State Highway System. The State provides financial and technological support for the inspection of these bridges, but the responsibility for the bridges remains with the County Engineer. This relationship has worked extremely well in New Jersey.

- (7) The GAO report stated that some bridge inspectors did not meet the minimum qualifications for training and experience. Do you agree with this statement? If so, why is this and what effect does this have on the quality of bridge inspections?

We are not aware of any specifics relative to the use of under-qualified bridge inspectors. In New Jersey, we insist that the bridge inspectors meet or exceed the minimum qualifications for training and experience in accordance with the National Bridge Inspection Standards. Utilizing less than properly qualified bridge inspectors would adversely affect the quality of bridge inspections.

- (8) In some cases local governments are responsible for posting or closing a bridge once the State has completed the inspection. Is there a wide-spread problem with local governments carrying out their responsibilities for posting and closing bridges?

In New Jersey, we have not experienced any problems with local governments closing or posting a bridge when an inspection-in-depth has indicated a need for such an action.

- (9) Should the square footage of all bridges within a State, as opposed to the square footage of deficient bridges only, be used in allocating bridge funds? Please comment on the advantages and disadvantages of using the square footage of all bridges to allocate bridge funds. Would such an approach increase the incentive for States to maintain their bridges?

Allocation of bridge funds based on square footage of deficient bridges most directly addresses funding of needs where they exist. Use of square footage for all bridges within a State as an allocation criteria would benefit States with large inventories; however, population density and overall public safety would not be equitably served. We do not believe that such an approach would increase the incentive for States to maintain their bridges.

- (10) Culverts are eligible for funding, but are not included in the needs data used to determine apportionments. Do you believe they should be included?

Culverts which qualify as bridges, if deficient, should be included in the needs data.

10

- (11) In determining priority for replacement and rehabilitation FHWA assigns a numerical sufficiency rating of 0 to 100 for each bridge; 0 indicating a totally insufficient bridge that should be closed and 100 a sufficient bridge in need of no work. As I understand it, the formula for assigning the rating is weighted, with structural adequacy constituting 55%, functional adequacy - 30%, essentiality for public use - 15%. Do you believe these factors are adequately weighted?

We believe that the factors of the formula for determining bridge sufficiency rating are generally adequately weighted. These factors were developed by the AASHTO Subcommittee on Bridges and Structures in 1976. It may be useful for the Committee to once again review these factors to determine whether any refinements are deemed appropriate as a result of experience over the last several years.

- (12) The current bridge apportionment formula is based upon Federal-aid system bridge and replacement needs only. Do you believe off-system bridges should be included in the apportionment formula also? Should off-system bridges be given the same weight in the formula as on-system bridges?

Off-system bridges should be included in the apportionment formula and should be given the same weight in the formula as on-system bridges.

- (13) Presently bridges with sufficiency ratings of 80 or below are eligible for funding. Those with ratings of 50 to 80 are eligible only for rehabilitation; those with ratings below 50 are eligible for replacement or rehabilitation. Please comment on the desirability of an apportionment formula that would include only bridges with sufficiency ratings less than 50 or that would give added weight to such bridges.

We do not believe that it would be desirable to apportion funds on a formula that would include only bridges with sufficiency ratings less than 50 or that would give added weight to such bridges. There is much merit in rehabilitating bridges with a sufficiency rating between 50 and 80 at relatively minimal cost rather than allowing such a bridge to continue to deteriorate to a point beyond economic rehabilitation and thereby mandating a much more costly replacement project.

- (14) Bridges with sufficiency ratings of 80 and above are included in the total number of a State's deficient bridges, but such bridges are ineligible for funding under the bridge program. Does the inclusion of bridges with 80-plus ratings tend to divert federal dollars from States with the largest problem?

The inclusion of bridges with an 80-plus rating in any funding allocation formula would tend to divert federal dollars from States with the largest problem.

- (15) Does the State need information regarding bridges on Federal lands? If so, have you had any problems in obtaining the necessary information?

Where bridges on Federal lands are available for public utilization, information regarding such bridges is required by the State in order to complete a total State bridge inventory. Information concerning such bridges has not been readily available.

- (16) Given limited funds available for bridge programs, what is the justification for expanding Federal involvement in off-system bridges? Currently, states may apportion no more than 35%, no less than 15% of off-system bridges.

Of the 200,000 bridges nationally requiring replacement or rehabilitation, approximately two-thirds of those are off-system bridges. The magnitude of the problem in conjunction with the safety and commerce issues associated with the problem argues for a continuing Federal involvement in off-system bridges. We believe that States should be provided maximum flexibility to allocate more than 35% for off-system bridges if deemed appropriate to address their respective problems.

- (17) What percent of each apportioned dollar is spent on the inspection and inventory effort?

Currently in New Jersey, 12% of each apportioned dollar is spent on the inspection and inventory effort. It is expected that with increasing cycles of inspection, the percent of each apportioned dollar spent on inspection and inventory will decrease.

We are hopeful that the above information will be helpful to the Senate Subcommittee on Transportation in formulating future legislation as it attempts to provide the necessary resources to deal with the Nation's bridge problems.

If we can provide any further information or answer any additional questions, please let us know.

Respectfully submitted,


Jack Freidenrich
Director of Engineering
and Operations



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
HARRISBURG, PENNSYLVANIA 17120

OFFICE OF
SECRETARY OF TRANSPORTATION

March 12, 1982

Honorable Steve Symms
United States Senate
Committee on Environment and Public Works
4204 Dirksen Senate Office Building
Washington, D.C. 20510
Attn: Jean Schrag

Dear Senator Symms:

It was a pleasure to testify before the Transportation Subcommittee on February 10, 1982. I appreciated the opportunity to discuss with you a subject as important as the Federal Bridge Program.

As you requested in your follow-up letter of February 16, 1982, we have responded to the Subcommittee questions; these are attached.

Please do not hesitate to contact me if I can be of further assistance.

Sincerely,

A handwritten signature in dark ink, appearing to read "T. D. Larson".

Thomas D. Larson, P.E.
Secretary of Transportation

Attachment

RESPONSES TO QUESTIONS

State DOT Officials

Q: The GAO report cites problems with railroad bridges and toll bridges complying with inspection requirements. Is this a problem in your State?

A: Yes, it is a problem. The Department of Transportation has no authority over railroad companies or toll road/bridge agencies. Consequently, the Department can only request compliance with inspection requirements. Since federal assistance is not available to these agencies for inspection purposes, there is no incentive to cooperate.

Q: How long does it take for data on inspection reports to be entered into the inventory? Do you believe there should be a specific requirement that information is updated on the inventory within a certain time period?

A: Currently, it may take up to 90 days, the present National Bridge Inspection Program requirement. However, Pennsylvania's structure inventory system will be fully on-line within the next month or two, which will substantially reduce the turn-around time to within two weeks. There should be a specific time requirement. Given various stages of inventory systems development among the states, the current 90-day time frame should be retained.

Q: The cost of bridge inspections varies significantly from State to State. What do you believe causes this variation?

A: There are several factors which cause inspection costs to vary from state to state. These include: (1) The size and caliber of inspection teams, e.g., a two-man team consisting of technicians vs. a three- or four-man team consisting of bridge engineers; (2) The size and condition of the bridge, which directly impacts the time required to perform the inspection; (3) Inspection conditions, e.g., traffic control requirements, weather, dense urban vs. rural local.

Q: According to the GAO report, by December 1980, the States had submitted for discretionary bridge funds 192 bridges at a total cost of \$5.3 billion. Given that \$200 million is annually available for this program, how do you believe bridges should be selected for discretionary funds?

A: Consideration should be given to removing the present legislative history requirement since this does not reflect the relative condition of candidate bridges. Other technical criteria should be used in addition to the sufficiency rating such as economic impacts, measured through data such as amount of commercial traffic (trucks), detour lengths and jobs impacted.

Q: Apart from the Federal bridge program, how large a State-only financed bridge program do each of you have?

A: In Pennsylvania, the Department of Transportation spends between \$15 million and \$20 million each year on 100 percent state-financed bridge restorations. An additional \$10.0 million is also spent for general bridge maintenance.

- Q: In some cases local governments are responsible for inspecting certain bridges. What would be the advantages and/or disadvantages in requiring the State government to inspect all bridges?
- A: In Pennsylvania, state law prohibits the expenditure of state funds on locally-owned bridges. Therefore, local governments would have to reimburse state forces for this work. Further, expanding the scope of inspection by state forces would also increase the states' liability in an area where they are not in complete control of project selection.
- Q: The GAO report stated that some bridge inspectors did not meet the minimum qualifications for training and experience. Do you agree with this statement? If so, why is this and what effect does this have on the quality of bridge inspections?
- A: In Pennsylvania, this is not the case. Bridge inspectors meet or exceed the minimum qualifications for training and experience.
- Q: In some cases local governments are responsible for posting or closing a bridge once the State has completed the inspection. Is there a widespread problem with local governments carrying out their responsibilities for posting and closing bridges?
- A: This would not apply to Pennsylvania since state forces do not inspect local bridges.
- Q: Should the square footage of all bridges within a State, as opposed to the square footage of deficient bridges only, be used in allocating bridge funds? Please comment on the advantages and disadvantages of using the square footage of all bridges to allocate bridge funds. Would such an approach increase the incentive for States to maintain their bridges?
- A: The federal program was designed to correct deficient bridges. Therefore, deficient bridges, or square footage thereof, should be the basis for apportionments. Further, in determining bridge needs by state, the states' representative unit prices should be used, not national averages. Limited federal resources could potentially be apportioned inconsistent with relative need if the square footage of all bridges were used as the basis. If states are carrying out responsible bridge programs, it is difficult to imagine how the latter approach, i.e., square footage of all bridges, would increase the incentive for states to maintain their bridges.
- Q: Culverts are eligible for funding, but are not included in the needs data used to determine apportionments. Do you believe they should be included?
- A: While the argument can be made that culverts perform the same function as bridges and should be treated equally; as a rule culverts with span lengths over 20 feet are rare. Unless the minimum span length was reduced below 20 feet, the additional effort required to perform a complete inventory and inspection function on culverts would probably not be justified.
- Q: In determining priority for replacement and rehabilitation FHWA assigns a numerical sufficiency rating of 0 to 100 for each bridge; 0 indicating a totally insufficient bridge that should be closed and 100 a sufficient bridge in need of no work. As I understand it, the formula for assigning the rating is weighted, with structural adequacy constituting 55%, functional adequacy - 30%, essentially for public use - 15%. Do you believe these factors are adequately weighted?
- A: Essentiality for public use should be weighed higher considering factors such as: (1) Commercial traffic (trucks), (2) Detour lengths, (3) School buses, and (4) Emergency vehicles (firetrucks).

- Q: The current bridge apportionment formula is based upon Federal-aid system bridge and replacement needs only. Do you believe off-system bridges should be included in the apportionment formula also? Should off-system bridges be given the same weight in the formula as on-system bridges?
- A: Off-system bridges should be included in the apportionment formula. They should receive equal weighting.
- Q: Presently bridges with sufficiency ratings of 80 or below are eligible for funding. Those with ratings of 50 to 80 are eligible only for rehabilitation; those with ratings below 50 are eligible for replacement or rehabilitation. Please comment on the desirability of an apportionment formula that would include only bridges with sufficiency ratings less than 50 or that would give added weight to such bridges.
- A: It would not be desirable to focus the apportionment formula on bridges with Sufficiency Ratings less than 50. This could result in the deferral of needed rehabilitations, which eventually mature into more costly bridge replacements.
- Q: Bridges with sufficiency ratings of 80 and above are included in the total number of State's deficient bridges, but such bridges are ineligible for funding under the bridge program. Does the inclusion of bridges with 80-plus ratings tend to divert federal dollars from States with the largest problem?
- A: The stated diversion of federal dollars, theoretically, should not occur. Bridges with Sufficiency Ratings greater than 80 should not be contributing substantially to a state's square footage of deficient bridges.
- Q: Does the State need information regarding bridges on Federal lands? If so, have you had any problems in obtaining the necessary information?
- A: Pennsylvania has no need for this data.
- Q: Given limited funds available for bridge programs, what is the justification for expanding Federal involvement in off-system bridges? Currently, states may apportion no more than 35%, no less than 15% of off-system bridges.
- A: The justification would undoubtedly vary from state to state. Consideration should be given to permitting states to exceed the current 35 percent maximum at their discretion.
- Q: What percent of each apportioned dollar is spent on the inspection and inventory effort?
- A: In Pennsylvania, 12 percent, or approximately \$4.5 million is spent on inventory and inspection.

Senator SYMMS. Gentlemen, it has just been brought to my attention that Mr. Allan Firmage, Department of Civil Engineering, BYU, has to catch an airplane. Is there any of you here who could be kind enough to let him testify first, then we will get right on with it?

Mr. Firmage, could you come up.

I will say again the chairman has a time constraint being placed on me also. So if you can, go right ahead, and also Dr. Rickerson who is with you there.

STATEMENT OF D. ALLAN FIRMAGE, PROFESSOR, DEPARTMENT OF CIVIL ENGINEERING, BRIGHAM YOUNG UNIVERSITY, ON BEHALF OF NATIONAL TRANSPORTATION POLICY COMMITTEE, AMERICAN SOCIETY OF CIVIL ENGINEERS, ACCOMPANIED BY BRUCE RICKERSON, AMERICAN SOCIETY OF CIVIL ENGINEERS

Dr. RICKERSON. If I may just briefly introduce Professor Firmage, he is a professor of civil engineering at Brigham Young University. Mr. Firmage has long been active with the American Society of Civil Engineers, is a bridge expert, internationally known, served as International Contact Director (ASCE). In fact, this morning he was designing a bridge in our office while he was waiting for this chance to appear. He is somewhat different from some of the people that you and I know about in Washington, Mr. Chairman, who don't do very much but just talk a lot. So it is my pleasure to present Mr. Firmage and to join you today.

Senator SYMMS. Thank you, Bruce.

Mr. FIRMAGE. Mr. Chairman, I would first like to make a statement about the whole problem of bridge engineering in the United States and then go to specific points about questions you ask. These views are my own in many instances.

The economic lifeblood of a nation is dependent upon its transportation system. A major proportion of the costs of consumer goods is related to the cost of transporting those goods. Good highways are vital to a transportation system. Good, safe bridges are a must to any highway system.

The Federal and State governments have been interlinked in the design, construction and maintenance of highway bridges on the Federal highway system. States, counties, and cities have had the responsibility of bridges on non-Federal highways.

The role of the Federal Government has been major in financing, research, and project review. Federal employees have not been involved in the detail design or construction of bridges. However, Federal engineers, many of them ASCE members, review all design plans and specifications for bridges which use Federal moneys.

States vary widely in their role in the design of bridges. Some of the Eastern States contract to consulting engineers the design of a large proportion of their bridges while some Western States, notably California, do all bridge designs in-house.

Most all bridge construction is done by private contractors while a large proportion of maintenance is performed by State, county, and city employees.

A special category are toll bridges wherein design, construction, and maintenance are all under the jurisdiction of a toll bridge au-

thority. In a few cases toll bridges are owned and operated by private corporations.

The role of the Federal Government in highways began when a uniform system of Federal highways was authorized. In those early days Federal standards were needed. Today I believe the need for Federal supervision of the design and construction of highway bridges is very minimal. Considerable time and cost could be eliminated if the Federal Government moved out of the area of design and construction review and regulation. The role of the Federal Government should be as an organizer of design guidelines through its corps of able Government engineers, and to correlate and foster research pertaining to highway bridges.

Inspection and maintenance should be the responsibility of the individual States. With a reduction of the Federal gasoline tax the individual States could raise their gasoline tax to meet the lack of Federal funds, or draw on President Reagan's transitional federalism fund. The lower population Western States with high ratios of mileage to population may have to develop some extra source of funds to meet new bridge construction, maintenance, and replacement costs. This may require toll bridges or some other form of revenue. A national highway network will need to be continued, but a truly "federal" system is the goal, as I am sure you can see.

For future major bridge construction, toll bridges may be the best means of financing with a possibility of private ownership, at least until the structure is amortized.

There is a large number of structurally and functionally deficient bridges in use today. The funds appropriated by the Federal Government in the last 4 years have helped in rehabilitating a number of dangerous bridges. Much more needs to be done. A national program must address only urgent needs.

Ways should be found for reducing overhead and review costs of bridge design, construction, and maintenance. More of the dollar should go into the actual construction and maintenance with a minimum of administrative costs.

I personally believe that designing of bridges should be directed toward the use of consulting design firms and a minimum of in-house design within the State governments. This is the procedure followed in most of the Western European countries. Nearly all of the new developments in bridge engineering in the last three decades have come from the European countries. As you know, Mr. Chairman, minimum government involvement tends to save money and result in innovation.

A thorough review of the role of the Federal Government in the highway transportation system is needed.

Now speaking to more specific points of the pending legislation, many bridges in the United States are dangerously deficient. It will take billions of dollars to rehabilitate or replace them. There is a very real question whether the Federal Government is the best vehicle to administer and fund such a program. Your subcommittee can assess this best. The GAO report of August 11, 1981, titled "Better Targeting of Federal Funds Needed to Eliminate Unsafe Bridges" brings out some real problems and weaknesses in the present Federal program of inspecting, cataloging, evaluating, and rating bridges and the funding for improvement of deficient

bridges. The problem is very complex from both a technical, social, and political standpoint.

I have real reservations on the value of Senator Sasser's bill, S. 1649, in solving any of the problems.

The GAO report leaves a trained and experienced bridge engineer with a feeling that a Federal bridge program is turned into a "numbers game." The safety evaluation of a bridge is a complex job that is not precise, full of assumptions and subjective judgment. The present program can only place bridges into broad categories of safety. Giving sufficiency ratings to one-tenth of 1 percent is absurd. It is possible that a bridge with a rating of 35 will stand for 40 years, and there is no real assurance that one with a rating of 90 will not fall down tomorrow.

Including culverts in the Federal program makes one wonder how intrusive a Federal program has become. According to the GAO report, some want to include culverts now in the Federal program.

I have a feeling too much time and money has been spent on administrative matters that could be better spent on repairing bridges.

The posting of a bridge with a one-number capacity is very imprecise. Because of this some people driving vehicles over bridges may have little faith in the reliability of the posted capacity.

I don't mean to convey to the committee the impression that the problem is hopeless of solution or even improvement. Much has been accomplished. More needs to be done. I believe future programs should be directed toward (a) more State and local government responsibility, toward the safety of bridges, and less involvement of the Federal Government, (b) less emphasis on compliance with Federal rules and regulations; (c) a means whereby more funds than at present can be obtained at the local level; (d) a study by unbiased, technically trained people on the optimum solution to the problem of bridge safety. And last, a target of eliminating all unsafe bridges in the United States over the next 10 years, coupled with an active program of bridge maintenance. The latter needs to go along with the rehabilitation and replacement of old bridges or we are just at the same spot 10 years down the road as we are today.

Thank you.

Senator SYMMS. Thank you very much, Professor. I appreciate your testimony.

You mentioned something in your testimony that most of the new bridge technologies are coming out of Europe. Many of the bridges that we have in the country that are unsafe were built pre-1935, and what is wrong with them is they have simply worn out over the years. Are the bridges that we have built in the last 10 to 20 years, are they deficient or generally are they OK?

Mr. FIRMAGE. Generally they are OK, they are satisfactory. Our design standards are satisfactory, and if they are not being maintained, then, of course, there will be problems with them—but our design standards at the present time are quite satisfactory. However, the state-of-the-art in bridge design is coming, to a large extent, from overseas.

Senator SYMMS. Why is it that the new bridge designs have come out of Europe?

Mr. FIRMAGE. Because there is more competition in the design and not so much involvement with government in the design phase. Even top-notch government engineers may be prevented by caution of policy from innovation in design.

Senator SYMMS. In Europe?

Mr. FIRMAGE. In Europe.

Senator SYMMS. I think you pretty well answered question 20 that I had marked here. I was going to ask you about in the GAO report they recommend that funds should be concentrated on bridges in the worst condition and most in need of repair and replacement. Do you believe there are instances where it would be more cost effective to repair the bridges with higher sufficiency rating rather than waiting until a major outlay is required for replacement? If so, how do you go about making that decision?

Mr. FIRMAGE. This is where the problem lies with a strict formula. Maybe giving the States a certain lump sum of money each year and giving them the freedom to decide which ones need to be replaced is best. Many factors may affect the need of a particular bridge. These can only be evaluated at the local level, not back here in Washington or some regional Federal office.

Senator SYMMS. Thank you very much. I hope you have a pleasant and nice flight this afternoon.

Mr. FIRMAGE. Thank you.

Senator SYMMS. Next we will hear from Richard Morgan, Associate Administrator for Engineering and Traffic Operations, Federal Highway Administration, and Mr. Stanley Gordon.

STATEMENT OF RICHARD MORGAN, ASSOCIATE ADMINISTRATOR FOR ENGINEERING AND TRAFFIC OPERATIONS, FEDERAL HIGHWAY ADMINISTRATION, ACCOMPANIED BY STANLEY GORDON, CHIEF, BRIDGE DIVISION, FEDERAL HIGHWAY ADMINISTRATION; AND REX C. LEATHERS, REGIONAL ADMINISTRATOR, REGION IV, FEDERAL HIGHWAY ADMINISTRATION

Mr. MORGAN. My name is Richard Morgan. I am Associate Administrator for Engineering and Traffic Operations, Federal Highway Administration. With me I have Rex Leathers, on my left, who is our Regional Administrator for region IV, in Atlanta, and on my right is Stanley Gordon, Chief of our Bridge Division in headquarters.

I have submitted a formal statement for the record. I believe I will just paraphrase it.

Senator SYMMS. Do your best to expedite and we will put your entire statement in the record.

Mr. MORGAN. I would skip over the needs. They have been adequately documented. What I would like to discuss is our administration of the program and some comments on the GAO report and the legislation.

The program is administered through headquarters. There are two distinct categories: the authorized funds which are distributed by formula through relative State needs, and discretionary funds which are set aside for use by the Secretary to replace or rehabili-

tate bridges of national or local importance on the Federal-aid system.

Since the inception of the bridge replacement and rehabilitation program in 1978 there have been 54 projects selected to replace or rehabilitate major bridges using discretionary bridge funds and more than 7,000 bridge replacement or rehabilitation projects using apportioned funds. Slightly over \$3.1 billion have been apportioned for highway bridge replacement and rehabilitation combined. In addition, in 1979 there was \$1.6 billion in regular Federal-aid funds, and in 1980 about \$1.6 in regular Federal-aid funds also used on bridges, in addition to the regular bridge replacement funds.

The States have made substantial progress in meeting the requirements of the national bridge inspection standards. Nearly all of the 260,000 Federal system bridges have been inspected, and about 96 percent of the Nation's 300,000 off-system bridges have been inventoried and inspected. I think that is remarkable progress considering the off-system program didn't start until 1978.

Now as for the GAO report, they made the report at the request of Senator Sasser and reviewed the national bridge inspection and bridge replacement and rehabilitation programs for effectiveness. They issued the report in August 1981. And the report concludes that the Nation's bridge owners, Federal agencies, States, and local governments are not fully complying with national standards for bridge inspection, and that the current procedures for allocating Federal bridge funds should be improved. FHWA's views on each of the GAO's specific findings and attendant recommendations are included right in the report so I won't go over them here. I will make a few remarks on the report.

The report provides a good analysis of the bridge program. However, many of GAO's concerns with respect to the program are already being addressed by FHWA. For example, the report observes that bridge program funds are being apportioned to States based on outdated and incomplete needs data. True. This is happening because the current apportionment factors were developed and approved by the Congress before enactment of the 1978 Surface Transportation Assistance Act. Therefore, the current apportionment factors do not reflect the major changes to the bridge program made by the 1978 act that bear upon the apportionment formula. We are considering legislation which will revise the apportionment formula to reflect current bridge data. Thereafter, we would update the data annually. This change would result in better distribution of bridge replacement and rehabilitation funds to the States.

The report also recommends that FHWA develop a strategy for bringing about full compliance of the States and local governments with national bridge inspection standards. As I mentioned earlier, the States have made substantial progress in meeting the requirements of the inspection standards. It should be remembered that the 1978 act greatly expanded the bridge program to include the off-system bridges, and as I mentioned previously, 96 percent of these off-system bridges have already been inspected.

As to the proposed bill, S. 1649, the bill was introduced in the last session of Congress aimed at improving the Federal program for bridge rehabilitation and replacement. It seeks to upgrade cur-

rent national bridge inspection standards and to achieve full compliance of States and Federal agencies with the standards.

While the intent of the bill is laudable, the actual provisions of the bill would not significantly improve existing law. Indeed, the bill would have the Federal Government intrude further into State and local prerogatives in their decisionmaking and affect delegations of authority between States and local governments.

It would require more regulations, create redtape, and result in costly redirection of Federal Highway Administration resources without a corresponding significant improvement in the overall program.

I have detailed comments on the bill section by section which we will include for the record.

In conclusion, we believe the bridge program has worked very well. Through continuation of our efforts and with the efforts of the States to make adjustments to the apportionment formula so there is an equitable distribution of funds, we are confident the program will become more effective.

Mr. Chairman, we look forward to working with you and the members of this committee in the future to achieve these ends. We will be pleased to answer any questions.

Senator SYMMS. I want to thank you very much for an excellent statement.

The GAO report states they found incomplete, inaccurate, and unreliable inventory data and inconsistencies in bridge inspections and ratings. Do you believe this has been a significant problem, and if so, what steps should be taken to improve the data-gathering inspection?

Mr. MORGAN. No, sir, we don't believe it has been a significant problem. Since the inception of the program we have developed manuals, put on training, the States put on training courses for the local and county engineers, and through this educational process some of the inconsistencies that were found will be overcome.

Senator SYMMS. How current is the square footage and average construction cost data used to apportion bridge funds?

Mr. MORGAN. Square footage is from 1977 and it only covers on-system bridges. The cost data we used in 1981 and 1982 apportionments were based on 1980 figures.

Senator SYMMS. So it is fairly accurate.

Mr. MORGAN. The cost data was fairly accurate. The square footage data is obsolete.

Senator SYMMS. According to the GAO report, the States had submitted by December 1980, 192 bridges at a total cost of \$5.3 billion for discretionary bridge funds. Given that \$200 million annually is available for this program, how do you believe the bridges should be selected for discretionary funds?

Mr. MORGAN. We have got a selection process which includes the sufficiency rating, traffic service, importance to national and local needs, and various criteria, and there is also the legislative background that the bridge has. That is what we use to select the discretionary.

Senator SYMMS. Relating to the question I asked the previous witness with respect to when you should go do the replacement or the rehabilitation or the maintenance of the bridge, do you think

that the recommendation that the worst bridges be fixed first is the right way to go?

Mr. MORGAN. Not completely. We believe in the flexibility because you can often rehab the bridge much cheaper and prolong its useful life, which is a more cost-effective solution, and that is basically where we are now.

Senator SYMMS. You mentioned in the bill that has been introduced before this committee some of the problems where it would have further Federal intervention. But if the Federal agencies were required to comply with the national bridge inspection standards, does the Federal Highway Administration have the staff capability to monitor the bridge inspections appraisal and local posting activities of these agencies?

Mr. MORGAN. Not completely. If it was limited to bridges on public roads only in a Federal jurisdiction it would be a different question, because only a small percentage of Federal bridges are on public roads.

Senator SYMMS. I think in your closing statement you said the bridge program has worked well. Through continuation of your efforts and adjustments to the apportionment formula you are confident the highway bridge replacement program will be more efficient. But you are not talking about any new legislation, it is just a matter of having Congress come up with the funding in the way we have been doing.

Mr. MORGAN. No, sir, I didn't want to imply that. We are still working on our 1982 legislation. We have not established a position on this program or any other program at this time.

Senator SYMMS. Thank you very much. We will let you catch your plane. We appreciate your efforts.

Now finally, gentlemen, you have been so courteous to have the chairman run you off twice we will let you come back up and testify this time. I am sure you have been in the situation where you have to catch a plane.

STATEMENT OF HENRY ESCHWEGE, DIRECTOR, COMMUNITY AND ECONOMIC DEVELOPMENT DIVISION, U.S. GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY RAYMOND SMITH, SENIOR EVALUATOR, GENERAL ACCOUNTING OFFICE; AND J. KEVIN DONOHUE, GROUP DIRECTOR, GENERAL ACCOUNTING OFFICE

Mr. ESCHWEGE. Mr. Chairman, we are also part of the Legislative Branch here in Washington, and we understand the problem people have who come from outside of Washington.

Senator SYMMS. Go ahead. I might mention to you I have a commitment here shortly in about 20 minutes.

Mr. ESCHWEGE. I will be very brief, and I appreciate your offer to put our full statement in the record.

I do want to introduce Mr. Kevin Donohue, on my left, who is our Group Director, and Ray Smith, on my right, who is the evaluator in charge of the work we did on bridges.

As you know, we issued the report in August 1981, and Senator Sasser's bill, S. 1649, would implement several of our recommendations.

The Highway Administration estimated in March 1981 that it would cost \$41.1 billion to replace or rehabilitate deficient bridges. Additional bridges also will need replacing or rehabilitating in the future. Inflation, of course, would further increase the cost.

Program funding has been limited in comparison to the size of the bridge problem. For example, all the projects approved during the first 9½ years of the program would only take care of about 3 percent of the bridges currently identified as deficient. We consider it essential that the limited Federal bridge replacement/rehabilitation program funds be used where they are needed the most. To insure that this is done, we recommended two major changes in the program. One change concerns distribution of program funds to the States. The other concerns project eligibility and selection.

Distribution of funds to the States has been based on outdated and incomplete data. The 1978 Surface Transportation Assistance Act provides that the basic bridge funds be allocated to the States according to apportionment factors approved by the House Committee on Public Works and Transportation in October 1978. The factors are essentially the same as those the Highway Administration developed and sent to the committee in May 1978. The act, dated November 6, 1978, specified that the Secretary of Transportation apply these factors to the authorization for each of the fiscal years 1979 through 1982 for which funds were provided. No provision was made to allow the Highway Administration to annually update the factors. Off-system bridges, which first became eligible under the act and which account for over half of all bridges and about 70 percent of total deficient bridges, were not included in the factors.

To improve distribution of funds to the States, we recommended that the Congress direct the Secretary of Transportation to use the latest available needs data, including off-system bridges, to annually allocate funds to the States. We recommended also that the Highway Administration revise its project eligibility criteria to concentrate on bridges in the worst condition and most in need of replacement or rehabilitation. Still, we pointed out that the States and local government will need some flexibility in selecting projects.

The Highway Administration's December 1978 change in eligibility criteria not only broadened the definition of a deficient bridge but also resulted in nearly all deficient bridges being eligible for funding. We do not believe that a program that is currently funded primarily with Federal funds of about \$1 billion per year can be directed effectively at eliminating all deficient bridges. More restrictive criteria would better insure bridges in the worst condition and most in need of work are selected first.

State and local governments have made substantial progress since the program's start, but full compliance with important National Bridge Inspection Standards has not been achieved. For example, we found that some inspectors did not meet the minimum qualifications for training and experience. Some State and local governments were not inspecting their bridges at least every 2 years, as required by the standards, and some local governments were not inspecting their bridges at all. Our report does question whether every bridge needs to be inspected every 2 years.

Also, the initial inventory and inspection of bridges, particularly bridges off the Federal-aid highway system, has not been completed and structurally weak bridges were not always properly closed or posted for lower weight limits to protect against bridge collapse. Even when bridges were properly posted or closed, the postings and closings were often ignored by the public. Bridge weight limits were not always enforced and fines for violations were small and ineffective.

We also found incomplete, inaccurate and unreliable inventory data and inconsistencies in bridge inspection and rating and limited monitoring of the program by the Highway Administration.

Finally, our report also points out that Federal agencies such as the National Park Service and Forest Service own about 14,000 bridges. These agencies, however, are not required to comply with the National Bridge Inspection Standards as State and local governments are. The traveling public should have reasonable assurance that the bridges it crosses in national parks and on other Federal lands are adequately inspected and monitored.

The Department of Transportation's response to our report has been largely positive. In fact, it has given the report extensive distribution throughout its Highway Administration offices. The Department was concerned, however, that implementation of some of our recommendations would increase its workload at a time when efforts are being made to reduce its oversight burden. We understand this overall concern and we are sensitive to it. But when it comes to matters of safety, Federal, State, and local governments collectively do need to provide sufficient resources to avoid catastrophes.

That is the summary of our statement, Mr. Chairman.

Senator SYMMS. Thank you very much. Due to the time constraints that I have personally I am going to submit some questions to you in writing, and since you are here in town maybe it won't be too much difficult and we can add it to our hearing record. I thank you for your patience and for your testimony and for the report because, as I say, I think the report has brought out some questions that needed to be asked that we are all very concerned about to do what we can to assure the public that when they cross the river they will get to the other side. We do thank you.

Mr. ESCHWEGE. Thank you, Mr. Chairman. We will be very glad to help you with any assistance that we can provide to you as you formulate your legislation.

Senator SYMMS. Thank you very much.

The meeting is adjourned.

[Whereupon, at 4:15 p.m., the subcommittee recessed, to reconvene subject to call of the Chair.]

[Statements and other material supplied for the record follow:]

TESTIMONY BY

DARRELL V MANNING
DIRECTOR

IDAHO TRANSPORTATION DEPARTMENT

BRIDGE REPLACEMENT AND REHABILITATION PROGRAM

OPENING

Good morning, Mr. Chairman and honorable members of the Senate Transportation Subcommittee. My name is Darrell Manning and I am the Director of the Idaho Transportation Department.

The Bridge Replacement and Rehabilitation Program is extremely important to the State of Idaho. Thus, this subcommittee's hearing on the Highway Bridge Replacement and Rehabilitation Program appears to be very timely. I say this in view of recent recommendations for further cuts in the Federal highway programs and returning certain responsibilities to the states. This comes at a time when Idaho is experiencing difficulties setting transportation improvement priorities, developing construction projects and realizing sufficient Federal funds to accomplish our objectives.

I will present testimony on each of the eight items outlined in Chairman Symms' letter requesting Idaho's input at this hearing. We have reviewed the General Accounting Office report entitled, "Better Targeting of Federal Funds Needed to Eliminate Unsafe Bridges," in the preparation of this testimony. Due to the potential implications of returning the bridge program to the states, I have also addressed this issue.

1. Bridge Apportionment Formula for Bridge Program Funds.

We support adoption of an apportionment formula to replace the present allocation based on "estimated" dollar needs. If a formula is adopted it should include transfer flexibility between this and other programs to accommodate those states whose bridges are in relatively good condition because of past improvement programs.

We also support retention of the discretionary provision as a source of funding for those very costly structures which could not or would not be financed by any other means.

Based on a report published by FHWA entitled, "Second Annual Report to Congress, Highway Bridge Replacement and Rehabilitation Program," dated March 1981, Idaho ranks 7th in the nation in the percentage of structurally deficient bridges, based upon the total number of bridges on the Federal-aid systems. However, Idaho ranked 39th among the states in level of funding. Available Federal funds for this program will fall far short of meeting Idaho's bridge replacement needs.

Between 1979 and 1982, Idaho received an average annual apportionment of Bridge Replacement and Rehabilitation funds of \$4.7 million. This would have to be increased to an annual amount of \$10 million to provide the Federal share of funding for Idaho's bridge needs of \$176 million over the next twelve years.

2. Relationship of State and Local Governments in the Distribution of Federal Funds within the States.

All Federal-aid funds to local units of government should be channeled through the states for the following reasons:

- a) The states are held responsible for the proper use of Federal-aid funds by local units.
- b) The states must agree to maintain completed projects in a serviceable condition.
- c) The states should retain authority to withhold funds at the local level for non-compliance of Federal mandates.
- d) Shifting these responsibilities to Federal Highway Administration by bypassing the states could not be done without a significant increase in FHWA staff and a duplication of distribution and control systems now in place for handling state-aid programs.
- e) The states provide an overview service which has led to elimination (rather than costly replacement) of some structures.

3. Project Selection Under the Discretionary Program.

We believe the project selection process in the State of Idaho has been applied in a consistent manner and has recognized the correct order of priorities. Idaho's three major bridges funded under the discretionary program have sufficiency ratings of 2.6, 2.9 and 8.2.

For example, 42 bridges have been replaced in Idaho whose sufficiency ratings ranged from 2.0 to 35.9.

We believe that the GAO report does not adequately recognize the need for flexibility in project selection. Factors such as route importance, amount of available funds and time requirements must be considered. We do not favor requirements for a more formal process. This would accomplish very little except to add more "red tape."

We do not agree with the GAO recommendation to lower project eligibility requirements which could tend to limit lead-time for development of bridges needing replacement within the next ten years.

We have appreciated and put to good use the allocation of discretionary bridge funds for the Sandpoint and Bonners Ferry bridges. Likewise, allocations of Bridge Replacement and Rehabilitation funds to Idaho have been put to good use through the systematic improvement of bridges having a life span of less than 10 years.

The discretionary bridge funds which Idaho received in the amount of \$9.8 million for the Bonners Ferry Project have been included in our FY 1982 obligational limitations. While we greatly appreciate receiving the funding, it reduces our FY 1982 obligational limitation to \$43.2 million for all other highway development projects.

The reduction in obligational authority will result in approximately \$5.8 million of lapsed interstate funds in FY 1982.

4. Appropriate Federal Participation in the Replacement and Rehabilitation of Off-system Bridges.

Although the Federal interest in off-system bridges may be less compelling than in other programs, we believe that Federal support should not be abruptly withdrawn at this time. Many off-system bridges in the western United States provide access to resource lands providing our nation and other nations with essential timber, minerals, energy, and food products.

We strongly recommend that support for any on-going Federal-aid highway programs not be withdrawn suddenly. We have experienced this with some programs in past years and such action is extremely wasteful of human and financial resources.

5. State Compliance with National Bridge Inspection Standards.

FHWA regional offices have been very active in reviewing state compliance with bridge inspection standards. A recent report concludes "The State has a very effective inspection program." All local units which do not have inspectors can obtain assistance from certified state inspectors or by certified consulting engineers.

The two-year inspection cycle is being maintained in Idaho for all units. However, one of the recommendations of the Federal Mandate Review completed by the American Association of State Highway and Transportation Officials was to allow the states more latitude in scheduling inspections -- especially for new bridges which have had a thorough initial inspection. In Idaho, bridges designed for H-15 loadings or less are inspected on an annual basis.

Most Idaho bridges were designed for double-axle H-10, H-15 and H-20 truck loads with a capacity of 20,000 to 40,000 pounds. The current Idaho practice is to design bridges for three or more axles with a truck-load capacity of 80,000 pounds. The present truck volumes and weights have significantly decreased the life expectancy of those bridges designated for lighter loads.

Bridge inspection in Idaho costs an average of 6 cents per square foot or about \$500,000 every two years.

6. The Need for Bridges Owned by Federal Agencies to Comply with National Bridge Inspection Standards.

We concur in GAO recommendations that Federal agencies should be required to inspect general public use bridges in conformance with national standards.

7. Status of On-system and Off-system Inventories.

All bridges in Idaho, (1,653 on-system and 1,929 off-system) have been inspected and are in inventory. Although all bridges in Idaho have been load-rated, a continuing effort is underway to load-rate all bridges using a more detailed computerized analysis. Follow-up bridge load limit posting requires continuing effort at the State level. Enforcement is (and will probably continue to be) a problem due to lack of staffing and/or interest by local law enforcement officials.

8. Appropriate Future Level of Funding for Bridge Program.

We believe that the present level of funding for the Bridge Program is inadequate for replacing those on-system and off-system bridges with a remaining life of 10 years or less.

However, we also believe the program to be relatively balanced with other non-Interstate Highway programs which are also underfunded in terms of need.

As with other programs, future funding levels should be periodically adjusted to compensate for inflation.

9. Perceived Effects of Turning Back the Bridge Program to the States.

If any highway programs are turned back to the states, we strongly recommend that highway funds should be kept separate from funds for other programs.

We support the concept of user taxation to support highway programs and we are concerned that those tax revenues would lose their identity if combined with other programs.

The State of Idaho, by its Constitution, must operate with a balanced budget. If the states were to inherit deficit ridden programs lumped together with balanced "pay-as-you-go" programs, a shift of highway funding to other programs would likely result.

We believe that, equity demands that user funds retain their identity and be returned to the users in the form of highway programs. We have no objection to combining the various highway programs into a single block grant. The distribution formula should compensate for discontinued categorical programs, so that total Federal funds to each state remain approximately the current level.

Whatever system is used, program stability is essential.

We must maintain a highly trained technical construction support staff to develop projects as funding becomes available. The states that are able to have an adequate staff for "peak" Federal funding situations will benefit at the expense of other states. The following Federal funding conditions; such as delays in annual apportionments and obligational limitations, greatly impact our staffing requirements.

These fluctuations force the states to staff for peak conditions to avoid lapsing of Federal funds.

CLOSING

In Idaho and the Nation, the economy is totally dependent upon good highways and adequate bridges. A section of highway can be poor but still serviceable, but the loss of a bridge can cause major and long term disruption to sectors of the economy. Familiar examples are the Hood Canal and West Seattle bridges in our neighboring state of Washington and the St. Joe River Bridge in Idaho.

Idaho is unique from many other states due to its sparse population, geographic features and highway pattern. There is only one in-state highway route extending north and south in Idaho. The sudden loss of a bridge on U.S. 95 would have dramatic impacts on our economy. Out-of-way travel as a result of reduced bridge load limits and detours would hamper Idaho's logging, grain hauling and tourism industries.

In conclusion let me state my belief that providing adequate highway transportation is a proper role of government at all levels. Economic recovery will be related to the degree that we provide highway service. At the present time we are losing ground in providing good highways. That trend must be reversed!

COMMENTS TO SUBCOMMITTEE ON TRANSPORTATION

By

Robert E. Farris, Commissioner
Tennessee Department of Transportation

February 10, 1982

I wish to express my sincere appreciation to Chairman Symms for providing the Tennessee Department of Transportation the opportunity to express its feelings regarding the Highway Bridge Replacement and Rehabilitation Program. In Tennessee, this is a much needed program and we would like to see it expedited and expanded, if at all possible.

First, I would like to comment on Senate Bill 1649. Next, I will respond to the eight issues outlined in Chairman Symms' letter of January 29, 1982. Then, I would like to offer some suggestions as to how the Bridge Program could be expedited and made more effective.

The stated purpose of Senate Bill 1649 is to ensure a fair and equitable distribution of bridge replacement funds between the states, to ensure replacement and rehabilitation of deficient bridges in a timely and efficient manner, and to ensure that states comply with the National Bridge Inspection Standards. This was elaborated on by Senator Sasser in his

introduction of the bill to the Committee on Environment and Public Works. In fact, Senator Sasser makes the statement that he believes it is time to consider giving the states more flexibility in targeting bridge funds once the states are fully informed on their own bridge needs. We certainly agree with his stated intent; however, the contents of his proposed legislation are in direct conflict with this statement since several of the provisions in the bill would almost completely eliminate any flexibility the state now has in the program and would create much additional time consuming and costly red tape not presently required under the existing Bridge Replacement Act.

Section 4(1) - This section requires that the Secretary revise the criteria in Section 144(b) and (c) for assignment of priorities for bridge replacement and rehabilitation in order to concentrate federal funding on bridges most in need of replacement and rehabilitation.

Comment - The revisions proposed for Section 144(b) and (c) are unnecessary since the present criteria adequately defines structures in need of rehabilitation or replacement and leaves the actual prioritizing to the states' discretion. We feel the present law is much more desirable than Senator Sasser's proposal which would

require the Secretary to establish detailed and rigid procedures to follow that would eliminate the flexibility the states now have.

Section 4(2) - This section requires the Secretary to establish a formal procedure for the selection of bridge replacement and rehabilitation projects for obligation of funds under Section 144(g) that will ensure the consideration of costs and benefits of each project in its selection.

Comment - We would prefer that the discretionary program be eliminated and that authority be given to the Secretary to respond to emergencies when created by the collapse of a major structure or other catastrophic occurrence for which there is no other available source of funds. We would; however, if the discretionary program is retained, support procedures that would place emphasis on the selection of structures that are considered structurally unsafe and/or are closed.

Section 4(3) - This section would require the Secretary to establish administrative guidelines for the distribution of highway bridge replacement and rehabilitation apportioned funds throughout each state under Section 144(j) of the present law with provisions for flexibility with respect to state administration of the apportioned funds.

Comment - If we have made the proper interpretation of this section, it appears that it concerns the distribution of allocated funds to each state and provides for funds within the state to be allocated to systems and projects at the state's discretion. This appears to be a desirable change; however, instead of the Secretary establishing the procedures, we feel it would be more desirable for the law to establish the guidelines whereby the distribution of highway bridge replacement and rehabilitation funds would be distributed to the states as a block grant on the basis of the total bridge needs within each state, including off-system bridges, and based on the state's current total bridge needs inventory that is updated and reported every 2 years. This would be similar to the method that has been successfully used in apportioning Interstate funds to the states for the Interstate Program.

Section 4(4) - This section would require the Secretary to monitor the distribution of highway bridge replacement and rehabilitation program apportioned funds throughout each state under Section 144(j).

Comment - This monitoring is already being done, as is the case for all federal highway funds.

Section 5(a)(1) - This section would require the Secretary to review each state's compliance with the National Bridge Inspection Standards.

Comment - The Secretary already has this authority and is presently being done in Tennessee.

Section 5(a)(2)(A) - This section would require the Secretary to revise the bridge inspection standards to improve inspection requirements, including decreasing the maximum time lapse between inspections.

Comment - We are already required to reinspect each bridge every 2 years and on certain bridges that show signs of potential problems, we inspect them on a shorter time cycle, sometimes as frequent as every 3 months. We feel this to be adequate and any increase in the amount of inspection would be adding unnecessary work and additional cost to the bridge program.

Section 5(a)(2)(B)&(C) - This section requires the Secretary to define precisely the factors to be considered and the methods used in rating the condition of bridges and to establish a standard for timely processing data resulting from inspection under such standards.

Comment - The presently existing National Bridge Inspection Standards established by the Secretary and the AASHTO Maintenance Manual for Bridges precisely define the factors dealing with bridge inspections and evaluations. Also, the data processing and reporting requirements already established by the Secretary appear to be more than adequate.

Section 5(a)(3) - This section requires the Secretary to assess the need for greater state and local government authority for inspection of bridges.

Comment - This section appears to be unnecessary since the state already has total authority, under the present law, for the inspection of bridges.

Section 5(a)(4) - This section requires the Secretary to encourage the states to take the actions necessary to fully comply with the National Bridge Inspection Standards relating to posting limits on bridges and closing bridges.

Comment - We question the wisdom of this provision since it will require legislation at the state level to force the counties and cities to post limits and close bridges. We feel sure that we

would meet the same resistance by local officials and the public that we have incurred in our attempts to impose the 55 mph national speed limit. Once the state has completed the inspection and advised the agency responsible for the structure of its condition, the agency that owns the bridge must then be responsible for the actions to be taken. We do not want the State Department of Transportation being made responsible for policing the actions of local governments.

Section 5(a)(5) - This section would require that all federal agencies maintaining bridges comply with the National Bridge Inspection Standards.

Comment - We agree with this provision in principle. However, funding will have to be provided from some source to replace bridges under the jurisdiction of federal agencies, either from bridge replacement funds or through the programs of the other federal agencies.

Section 5(b)(1) - This section requires that no later than January 1, 1983, the Secretary shall prepare and, to the extent permitted by law, implement a plan of action designed to result in full compliance by the states and local governments with the National Bridge Inspection Standards.

Comment - This provision is already covered under Section 144.

Section 5(b)(2) - This section requires that in the preparation of the plan of action, the Secretary shall consider the imposition of penalties and other sanctions against the states and local governments in fully complying with such standards.

Comment - It appears that the only penalty that could be imposed would be the withholding of the funds from the governments or agencies responsible for replacing substandard bridges. This being the case, it seems that this provision could subvert the basic intent of the legislation which is to assist states and local governments in replacing unsafe bridges.

Section 6(1)&(2) - This section requires the Secretary to establish procedures to ensure rapid completion of accurate inventories of bridges under Section 144(b) and (c) and inventory all bridges maintained by federal agencies.

Comment - Under the present law, the procedures and authority are already provided and the inventory of all bridges should have already been completed. The inventory has been completed in Tennessee, including all bridges under the jurisdiction of federal agencies. If the distribution of funds to the states required that

a complete and accurate inventory of needs be certified to the Secretary every two years before the state could receive its share of the bridge funds, this certainly would provide an incentive for each state to complete their inventory.

Section 7 - This section requires that the Secretary prepare a plan for a public information program with respect to the weight limits, closings, and hazards, if any, of each bridge. The Secretary shall include in such plan provisions for administration of such program by the states.

Comment - It seems this would be another costly exercise of red tape which will serve to benefit no one. The information relative to bridges is presently readily available to anyone who desires the information, including our Information Office which is already making timely releases of information pertaining to bridges and the Bridge program.

I believe I have covered all of the major concerns we have regarding Senate Bill 1649. Now, I would like to briefly comment on the eight issues contained in Chairman Symms' letter.

1. Bridge apportionment formula.

Comment - Bridge replacement and rehabilitation funds should be apportioned to the states on the basis of total bridge needs within each state, including all deficient bridges both on-system and off-system.

2. The relationship of state and local governments in the distribution of federal funds within the states.

Comment - It is our feeling that bridge funds within a state should be allocated on the basis of need and priority without regard to what system they may be on, or under whose jurisdiction the bridge may fall. The arbitrary percentages established for each system by the present legislation can, in some cases, cause delay in replacement of some of the most critically needed structures within a state just because of the system designation. Also, the needs by system can vary greatly from state to state. The working relationship between the states and local governments and jurisdictional authority is unique to each state. Therefore, a high degree of flexibility must be retained in this area.

3. Project selection under the discretionary program.

Comment - We feel that the discretionary program should be discontinued and that the replacement of all deficient bridges should be handled in the same manner. However, if the discretionary program is retained, we recommend that the legislative history no longer be considered in bridge selection and that all qualified candidate bridges be prioritized according to their load carrying capacity.

4. Appropriate federal participation in the replacement and rehabilitation of off-system bridges.

Comment - We feel that the 20% matching required by states and local governments should be retained. However, states and local governments should be given the option of an in-kind match on a program basis in lieu of the current dollar match on a project by project basis.

5. State compliance with the National Bridge Inspection Standards.

Comment - It is our opinion that the Secretary already has sufficient authority to ensure compliance as long as it is uniformly administered throughout the states. Tennessee is certainly in compliance.

6. The need for bridges owned by federal agencies to comply with the National Bridge Inspection Standards.

Comment - We feel that all bridges open to public travel should be subject to complying to National Bridge Inspection Standards and that additional funds should be provided to the federal agencies for their replacement of deficient bridges in a timely manner.

7. Status of on-system and off-system inventories.

Comment - In Tennessee, the inventory and evaluation of all bridges is complete on both the on-system and off-system, including all bridges owned by federal agencies.

8. The appropriate future level of funding for the bridge program.

Comment - We feel the funding level contained in the current law was adequate for the program, initially. However, since the states have completed the inventories and gotten geared up to undertake a massive bridge program, we feel the funding should now be accelerated in order to eliminate, in a timely manner, the thousands of unsafe bridges that have been identified throughout the nation.

After reviewing the Comptroller General's report, Senator Sasser's proposed bill, and the existing legislation pertaining to the highway bridge replacement and rehabilitation program, we feel that it would be appropriate to propose some minor revisions to the existing law that would assure (1) a more equitable allocation of bridge funds to each state based on the total bridge needs within the state, (2) provisions for more flexibility by the states in the selection of bridges for replacement, and (3) more flexibility in the matching requirements.

We feel that the existing law is reasonably adequate relative to the inspection, evaluation, and reporting of bridges provided the rules are administered uniformly throughout the states. However, we feel there are a number of improvements in the existing law that could be made to accelerate the replacement of the nation's most critical bridges at a reduced cost.

First, the Congress should apportion the bridge funds to the states as an annual block grant on an equitable formula based on the total bridge needs within each state. The 20% matching requirement should be retained; however, we strongly recommend that provisions be made for an in-kind match of the program, if so desired by the state. In Tennessee, there have been many instances where the replacement of critically needed bridges have been delayed or not accomplished at all because the local governments

were unable to provide the local match or disagreed with state priorities which were based on federal inspection data. This problem would be greatly reduced if an in-kind program match were permitted. The in-kind program match should allow states to advance the program with available state and local resources and then receive credit against matching requirements for federal-aid bridge program funds. The only federal requirements for receiving in-kind credit for state and local bridge replacement expenditures should be that upon completion of the bridge, it is no longer categorized as deficient under the AASHTO Bridge Standards and the expenditures for the bridge work being subject to federal audit. This approach would appear to be very appropriate for this program, especially when local agencies are involved.

It is our opinion that the bridge replacement funds should not be allocated to specific systems within a state, but be available to the states as one bridge replacement fund to be applied to all bridges on the basis of need regardless of what system a bridge might be on.

In Tennessee, over 97% of the bridges required to be closed are off-system bridges. This being the case, the replacement of many of these off-system bridges cannot be accomplished because of the requirement in the existing law that not more than 35% of the funds available to a state

can be used on off-system bridges. In order to be consistent with the stated intent of the bridge program, this requirement should definitely be changed.

In Tennessee, we have recently gotten our bridge program geared up to move at a pace that will utilize all of the bridge funds allocated to the state and are now moving toward expanding our program with an additional 100% state funded bridge program. However, we are in a constant dilemma regarding our federal programs because of the obligation authority imposed on the total expenditure of federal-aid highway funds. The states have to make a choice as to which programs will be reduced to comply with reduced obligation authority and how much the reductions in each program will be.

I am sure that many states, including Tennessee, have, in many cases, placed priority on completing the Interstate System and safety projects which has resulted in reductions in the utilization of bridge funds. This would not be the case if Congress could see fit to remove the bridge program from the obligation authority controls.

This concludes my remarks and, again, I would like to thank the members of the Subcommittee for providing me this opportunity to express the views of the Tennessee Department of Transportation on the much needed Bridge Replacement and Rehabilitation Program.

Summary of Structurally Deficient Bridges in Tennessee
as of January 15, 1982

	<u>Total All Bridges</u>	<u>Number Posted</u>	<u>Number Closed</u>
Interstate	1226	0	0
State Routes	3919	244	0
FAS	2435	275	26
FAU	481	38	3
Off-System County	8239	4175	1235
Off-System City	<u>1120</u>	<u>246</u>	<u>4</u>
	17,420	4,978	1,268

Statement By
Thomas D. Larson, Secretary
Pennsylvania Department of Transportation

I. INTRODUCTION

Thank you, Mr. Chairman. My name is Thomas D. Larson. I am Secretary of Transportation for the Commonwealth of Pennsylvania. I am pleased to have this opportunity to testify before you today on the Federal Bridge Program.

I have structured my remarks to first address some of the issues raised in the General Accounting Office report on targeting Federal assistance under the Federal Bridge Program. I would then like to address some other key issues with respect to the Federal program structure. These have come to our attention through our review of legislative proposals such as your Committee's bill, S. 1024.

II. TARGETING OF FEDERAL FUNDS

Let me say first that the Federal Bridge Program, and its importance, is often times stressed within the context of safety. This is not to be minimized. We believe, however, that bridges are preeminently basic elements to any effective economic recovery program. A closed or weight restricted bridge can lead to total disruption of the transportation system. Under the best of circumstances deficient bridges impede the transport of commodities by truck, and in doing so, raise transportation costs. This point is particularly critical to Northeastern states since approximately 75 percent of all freight originating and terminating in the region is moved over highways. The importance of the highway and bridge system in this regard will undoubtedly increase as the Northeastern rail system continues through its current rationalization process.

In Pennsylvania, we are particularly sensitive to economic impacts when targeting resources for deficient bridges. We are also sensitive to more technical criteria such as bridge sufficiency ratings. Assisting local

governments in the repair and replacement of their bridges is another important element of Pennsylvania's program. Let me cite just a few examples.

In Tioga County, one of the Commonwealth's more rural counties, the Agri-business Community identified some 14 deficient bridges as being serious deterrents to milk-hauling operations. In this case, the Commonwealth dedicated \$350,000 in state funds to repair structures along critical milk-hauling routes.

In a broader context, we are now in the process of surveying current truck traffic. These data will be used to identify a statewide core network of highways and bridges critical to commerce. When making future decisions on targeting Federal resources, deficient bridges on this network will receive priority consideration.

I mentioned before our sensitivity to bridge sufficiency ratings when targeting Federal aid. I would like to draw your attention to page 50 of the GAO report. Of the 10 states inventoried (Pennsylvania, California, Georgia, Illinois, Kansas, Louisiana, Massachusetts, New York, Tennessee and Wyoming) the overall percentage of bridges with sufficiency ratings less than 20 that were selected for Federal Bridge Program funding was 41 percent. In Pennsylvania's case, however, the comparable percentage was significantly higher -- 61 percent -- we do have many deficient bridges in Pennsylvania and we target our resources to those in the worst condition.

Concerning assistance to local governments, the Commonwealth dedicated \$4 million in Federal assistance (under the Federal Critical Bridge Program) for the replacement and/or rehabilitation of approximately 25 bridges to another of its rural counties, Mercer County. Many of these bridges were also critical to addressing local economic development priorities.

III. FEDERAL PROGRAM STRUCTURE

We perceive the Federal Bridge Program's contribution to economic recovery as being a vital one. Therefore, it should remain as part of the Federal-Aid Highway Program. This is a \$41 billion problem that continues to grow each year.

The bridge discretionary element should be retained as well. The discretionary program provides a worthwhile opportunity to correct high-cost bridge problems that might otherwise continue unresolved. Pennsylvania has been extremely fortunate in that \$60 million has been received in discretionary allocations over the last three years. I might point out that the three bridges selected for discretionary funding in Pennsylvania all had sufficiency ratings less than 15.0, in fact, two had sufficiency ratings of 2.0.

The Beaver Falls/New Brighton bridge, located in western Pennsylvania, was one of the three bridges approved for discretionary funding. It was originally built in the 1890's as a railroad bridge and later converted to a highway bridge in 1927. The bridge sufficiency rating is 2.0. Since construction of a new bridge was not scheduled to begin until May of 1983, we invested \$160,000 in state funds for interim improvements to the deck. Our initiative in this area resulted in the removal of a 15-ton weight limit. A recent study done by local business groups showed that had the weight limit been in force, an additional \$14 million in time and fuel costs would have accrued to the 2,400 trucks that use the bridge each day. A four-year analysis period was used for this study -- 1981 through 1984. Key industries served by the bridge include Babcock and Wilcox steel products, J and L Steel, and ARCO Polymers chemicals.

I would now like to address some key issues with respect to the formula used to apportion Federal Bridge Program funds to the states. First of all, the formula should be based on needs, and these should be estimated as accurately as possible. Given this, the most up-to-date inventory data should be used and unique state conditions should be considered wherever possible.

In your Committee's highway bill, S. 1024, the apportionment formula was modified so that average national unit costs (rather than state-by-state unit costs) are used in determining bridge needs by state. If enacted, this will have a substantial negative impact on Pennsylvania and

several other Northeastern states. On the table attached to my written statement, I have shown this impact. Pennsylvania's apportionment factor is reduced from 5.78 percent to 3.85 percent. This reduction causes our apportionment to be reduced by one-third. This is directly related to the difference in Pennsylvania unit prices and national unit prices for bridge construction. Pennsylvania's unit prices do exceed the national average by one-third. This is caused primarily by higher wage rates in the industrialized Northeast. We believe that state-by-state unit costs are a critical ingredient to the formula if unique state conditions are to be considered and if bridge needs are to be accurately determined.

IV. SUMMARY

In conclusion, Mr. Chairman, I would like to summarize my key points:

- Given adequate Federal resources, the Bridge program can make a substantial contribution to economic recovery.
- In targeting Federal resources, economic impacts should be considered in addition to technical criteria such as bridge sufficiency ratings.
- Since the Federal Bridge Program has the potential for making a positive impact on the nation's economic recovery, and given the size of the problem, it should be retained as part of the Federal-Aid Highway Program.
- And finally, the apportionment formula should be based on needs, employ the latest bridge inventory data and consider unique state conditions, e.g. state unit prices, wherever possible.

The results of these hearings will hopefully provide a useful framework as the Congress considers reauthorizing legislation during 1982. I am ready to assist you in any way I can.

Again, I thank you for this opportunity.

HIGHWAY BRIDGE REPLACEMENT AND REHABILITATION PROGRAM

Comparative Analysis of Apportionment Factors

STATE	CURRENT FORMULA	PROPOSED FORMULA ^a
	'78 ACT	5.1024
ALABAMA	1.40	2.79
ALASKA	0.25	0.25
ARIZONA	0.25	0.25
ARKANSAS	1.66	1.99
CALIFORNIA	2.64	2.66
COLORADO	0.47	1.08
CONNECTICUT	0.34	1.08
DELAWARE	0.25	0.25
DIST. OF COL.	1.09	0.50
FLORIDA	3.49	3.95
GEORGIA	2.63	3.06
HAWAII	0.37	0.25
IDAHO	0.60	0.40
ILLINOIS	8.00	3.58
INDIANA	0.90	2.50
IOWA	2.39	3.19
KANSAS	2.67	2.36
KENTUCKY	4.15	1.85
LOUISIANA	5.94	4.23
MAINE	0.71	0.36
MARYLAND	1.87	1.18
MASSACHUSETTS	2.14	1.29
MICHIGAN	1.45	0.86
MINNESOTA	3.35	1.88
MISSISSIPPI	0.74	4.14
MISSOURI	1.40	5.02
MONTANA	0.47	0.64
NEBRASKA	1.65	1.77
NEVADA	0.25	0.25
NEW HAMPSHIRE	1.05	0.36
NEW JERSEY	1.72	2.30
NEW MEXICO	0.43	0.42
NEW YORK	8.00	9.00
NORTH CAROLINA	2.35	4.83
NORTH DAKOTA	0.66	0.53
OHIO	2.29	2.06
OKLAHOMA	0.63	1.76
OREGON	0.98	1.16
PENNSYLVANIA	5.78	3.85
RHODE ISLAND	0.61	0.25
SOUTH CAROLINA	1.61	1.53
SOUTH DAKOTA	0.46	0.51
TENNESSEE	3.34	3.52
TEXAS	4.09	5.53
UTAH	0.25	0.25
VERMONT	1.12	0.32
VIRGINIA	3.84	1.35
WASHINGTON	2.84	2.24
WEST VIRGINIA	1.49	0.92
WISCONSIN	2.37	3.20
WYOMING	0.25	0.25
PUERTO RICO	0.32	0.25
TOTAL	100.00%	100.00%

^aFormula employs national average unit prices in determining bridge needs by state.

STATEMENT OF
R. D. MORGAN
ASSOCIATE ADMINISTRATOR FOR ENGINEERING AND TRAFFIC OPERATIONS
FEDERAL HIGHWAY ADMINISTRATION
BEFORE THE
SUBCOMMITTEE ON TRANSPORTATION
OF THE
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

FEBRUARY 10, 1982

Good afternoon, Mr. Chairman and Members of the Subcommittee. I am pleased to appear before you today to discuss the national bridge program. With me this afternoon are our Regional Administrator for Region IV, in Atlanta, Rex C. Leathers, and our Bridge Division Chief, Stan Gordon. After my presentation, if you agree, we will be glad to answer any questions you or the Subcommittee may have.

OVERVIEW OF BRIDGE PROGRAM

The country faces a serious problem of bridge deterioration. The magnitude of the problem can be seen in the figures with respect to the program. Of some 560,000 bridges nationally, about 75 percent were built before 1935, and about 40 percent are deficient. In the March 1981 Annual Report to Congress on the Bridge Program, we estimated that it could cost \$41 billion to rehabilitate or replace these bridges. Authorizations to fund the bridge program have totaled \$5 billion from the program's beginning in fiscal year 1972 through fiscal year 1982.

The realization of the need for bridge replacement and rehabilitation has become more acute over the last decade and much has been done to alleviate the problem. This Committee has a well-known interest in the bridge problem and has provided great leadership toward its resolution.

Working towards a solution of the problem, the Congress established two major bridge safety programs: the National Bridge Inspection Program and the Special Bridge Replacement Program. The National Bridge Inspection program was established by the Federal-Aid Highway Act of 1968. It is a program of periodic inspections to identify bridge conditions, maintenance needs, and safety problems. In accordance with the Act, the Federal Highway Administration, in extensive consultation with the States and transportation community, developed National Bridge Inspection Standards. The standards—codified in title 23, part 650 of the Code of Federal Regulations—required the States to inspect and inventory their Federal-aid bridges by July 1973, and reinspect them at least every 2 years. The standards established inventory data to be maintained on each bridge, inspector qualifications, inspection methods, and load posting requirements.

The Special Bridge Replacement Program began in fiscal year 1972 to supplement the State's efforts to replace unsafe bridges. Alongside this program, the bridge inventory and classification began in order to establish a national record of the status of bridges on the Federal-aid systems. From this record priority projects were identified for Federal funding. From fiscal year 1972 through fiscal year 1978, \$835 million was authorized for the Special Bridge Replacement Program at a 75 percent Federal share.

The Surface Transportation Assistance Act of 1978 extended and expanded the Special Bridge Replacement Program to what is known as the Highway Bridge Replacement and Rehabilitation Program. This revised program represents our progress to date toward a program for alleviating the recognized nationwide bridge problem. The highlights of this program are its rehabilitation feature

in addition to replacement, substantial flexibility to States in replacing or rehabilitating their deficient bridges, and greatly increased funding (\$4.2 billion for FY's 1979 through 82) over previous authorizations. Other important features of the program include: a Federal matching share of 80 percent; expanded eligibility to include all publicly owned deficient highway bridges regardless of what they cross; availability of a percentage of the apportioned bridge program funds to replace or rehabilitate bridges off the Federal-aid system; and extension of the National Bridge Inspection Standards to off-system bridges.

BRIDGE PROGRAM ADMINISTRATION

Having provided the historical overview of the bridge program, I would like now to describe the progress made in administering the Highway Bridge Replacement and Rehabilitation Program.

The Highway Bridge Replacement and Rehabilitation Program is being administered through organizational channels by the Washington Headquarters of the Federal Highway Administration. The program is divided into two distinct categories: (1) apportioned funds distributed by formula according to relative State needs; and (2) discretionary funds set aside for use by the Secretary of the Department of Transportation to replace or rehabilitate deficient bridges of national and local importance on the Federal-aid system.

The FHWA, in cooperation with the Office of the Secretary, developed an implementation plan for the purpose of administering the discretionary bridge program. The discretionary funds are being used to finance the replacement or rehabilitation of critically needed, high-cost, Federal-aid system bridges;

priority is given to those bridges having legislative history. Special consideration is being given to States whose accumulation of apportioned bridge replacement and rehabilitation funds over the period of availability could not possibly fund an expensive structure.

Since the inception of the Highway Bridge Replacement and Rehabilitation Program in 1978, 54 projects to replace or rehabilitate major bridges have begun using discretionary bridge funds; and more than 5,000 bridge replacement or rehabilitation projects have been initiated using apportioned Highway Bridge Replacement and Rehabilitation funds. Slightly more than \$3.1 billion have been apportioned for highway bridge replacement and rehabilitation combined. The States have made substantial progress in meeting the requirements of the National Bridge Inspection Standards. Virtually all 260,000 Federal-aid System bridges have been inspected. Ninety-six percent of the Nation's 300,000 off-system bridges have been inventoried--remarkable progress considering the fact that this effort was not launched until late in 1978.

However, there are a few slow areas with respect to the inspection and inventory of bridges. Some States are experiencing difficulty in determining jurisdictional authority of certain bridges and are working with appropriate agencies to resolve the differences. Some entities, such as railroads and turnpike authorities, have not yet submitted data on bridges under their jurisdiction to the States for inclusion in the States' inventories.

The FHWA, in consultation with the States, is continuing to establish bridge priorities by assigning a sufficiency rating to each bridge inventoried. The lower the sufficiency rating, the higher the priority for replacement or

rehabilitation. The sufficiency rating is calculated based on the following general categories and relative percentages:

Structural Adequacy and Safety	- 55 percent
Serviceability and Functional Obsolescence	- 30 percent
Essentiality for Public Use	- 15 percent

From data submitted by the States, a bridge replacement and rehabilitation selection list is compiled for each State; the list indicates a sufficiency rating for each deficient bridge. Bridges on this list with a sufficiency rating of 0 through 80 are eligible for rehabilitation; to be eligible for replacement, a bridge must have a sufficiency of less than 50.

GAO REPORT ON BRIDGES

The Government Accounting Office (GAO), at the request of Senator Sasser of Tennessee, recently reviewed the national bridge inspection and highway bridge replacement and rehabilitation programs for effectiveness. The GAO issued a report in September 1981 which concludes that the Nation's bridgeowners—Federal agencies, States, and local governments—are not fully complying with national standards for bridge inspection, and that current procedures for allocating Federal bridge funds should be improved. Since FHWA's views on each of the GAO's specific findings and attendant recommendations are included in the Report, I will make only a few remarks here on this report.

The GAO Report provides a good analysis of the bridge program; however, many of the GAO's concerns with respect to the program are already being addressed by the FHWA.

For example, the report observes that bridge program funds are being apportioned to the States based on outdated and incomplete needs data. This is happening because the current apportionment factors were developed and approved by the Congress before the enactment of the 1978 Surface Transportation Assistance Act. Therefore, the current apportionment factors do not reflect the major changes to the bridge program made by the 1978 Act that bear upon the apportionment formula. We are considering legislation which would revise the apportionment formula to reflect current bridge data. Thereafter, we would update the data annually. This change would result in better distribution of bridge replacement and rehabilitation funds to the States.

The Report also recommends that FHWA develop a strategy for bringing about full compliance of the States and local governments with the National Bridge Inspection Standards. As I mentioned earlier, the States have made substantial progress in meeting the requirements of the inspection standards. It should be remembered that the 1978 Act expanded the bridge program to include off-system bridges in addition to bridges on the Federal-aid systems. Ninety-six percent of the Nation's 300,000 off-system bridges have been inspected and inventoried since that time. Virtually all 260,000 Federal-aid System bridges have been inspected. We believe that this progress is extraordinary and expect continued efforts by the States to achieve full compliance with the standards.

S. 1649

The GAO Report has already been used as a basis for highway bridge legislation. Senator Sasser introduced a bill—S. 1649—in the last session of this Congress aimed at improving the Federal program for bridge repair and replacement. S. 1649 seeks to upgrade current national bridge inspection standards and to achieve full compliance of States and Federal agencies with the standards. It proposes to revise the criteria, priorities, and selection processes for funding allocation so as better to target funding on the most

deficient bridges. Without getting into the specifics of S. 1649 here, I would like to make a few general comments and submit for the record detailed comments on the actual provisions of the bill.

While the intent of the bill is laudable, the actual provisions of the bill would not significantly improve existing law. Indeed, the bill would have the Federal Government intrude further into State and local prerogatives in their decisionmaking and affect delegations of authority between States and local governments.

S. 1649 would require more regulations, create red tape, and result in costly redirection of FHWA resources without a corresponding significant improvement in the overall program.

Virtually everything in S. 1649 was legislated in the 1978 Surface Transportation Assistance Act and is being done or can be done administratively by the FHWA. For example, the FHWA has an ongoing program to work with State and local officials to improve the bridge program. We conduct training programs, discussions, management reviews, annual maintenance reviews, and periodically issue advisory material to assure the integrity of the Nation's bridges.

In conclusion, Mr. Chairman, the Bridge Program has worked very well. Through continuation of our efforts programmatically and adjustments to the apportionment formula we are confident that the Highway Bridge Replacement and Rehabilitation Program will become even more effective in alleviating our national bridge problems. Mr. Chairman, we look forward to working with you and the Members of the Subcommittee in the future to achieve those ends.

That completes my prepared statement, Mr. Chairman. I would be pleased to answer any questions you or other Members of the Subcommittee might have.

Also, Mr. Leathers is well acquainted with our administration of the program in the field and could address any questions from that perspective.

FEDERAL HIGHWAY ADMINISTRATION

SECTION-BY-SECTION COMMENTS

ON S.1649

Sec. 2.

Section 2(b) would define the term bridge as "a structure on which a highway crosses over waterways, other topographical barriers, other highways, and railroads".

COMMENT. This definition is too loose. It risks opening up the bridge program to include extremely short span stream crossings—5 feet or less.

Current regulations (23 CFR 650.403) define the term bridge as:

"a structure including supports erected over a depression or an obstruction, such as water, a highway, or a railway, and having a track of passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening."

We believe the current definition is appropriately drawn.

Sec. 4.

Section 4(1) would direct the Secretary of the Department of Transportation (hereinafter Secretary) to revise the criteria for assigning priorities for bridge replacement and rehabilitation so as to better concentrate Federal funding on the most deficient bridges.

Comment. Existing law already directs the Secretary to give consideration

to those bridges most in danger of failure. Sufficiency ratings now used to evaluate the adequacy of bridges provide a good ranking method. The Federal Highway Administration (FHWA) will continue to encourage the States to select as projects bridges with lower sufficiency ratings, but we do not intend to strip the States of their flexibility in the selection process.

Section 4(2) would direct the Secretary to establish a formal procedure for selecting discretionary bridge projects.

Comment. An implementation plan for administering the discretionary bridge program has been established and is operative. Factors such as sufficiency ratings, legislative history, costs and benefits, defense route needs, and local and national impacts, are considered when selecting discretionary bridge projects.

Section 4(3) would direct the Secretary to establish guidelines to ensure fair and equitable distribution of bridge replacement and rehabilitation apportioned funds throughout each State.

Comment. We agree that fair and equitable distribution throughout each State should be made. We have urged each State to develop and tailor its own distribution plan in lieu of our establishing rigid guidelines. We will continue to use management reviews to urge States to develop their own systems. The establishment of strong FHWA guidelines would be antithetical to this approach, as they would restrict the consideration of local factors when making project selections. Weak guidelines, on the other hand, would not be meaningful.

Section 4(4) would direct the Secretary to monitor the distribution of apportioned bridge funds throughout each State.

Comment. The FHWA has had an ongoing monitoring program since the inception of the bridge program. The FHWA management reviews provide good opportunities to monitor and guide States development in their project

selection procedures. We plan to continue the reviews and to use them to promote improvements in the States distribution plans.

Sec. 5.

Section 5(a)(1) would direct the Secretary to review each State's compliance with the national bridge inspection standards.

Comment. The FHWA currently performs this function as part of its monitoring and evaluation program. Additionally, FHWA management reviews and Annual Maintenance Reports are used to monitor the States compliance with the National Bridge Inspection Standards (NBIS).

Section 5(a)(2) would direct the Secretary to revise the NBIS to (a) improve inspection requirements--as a minimum by increasing the frequency of reinspections; (b) define precisely the factors to be considered and the methods used in rating bridges; and (c) establish a standard for the timely processing of inspection data.

Comment. (a) The FHWA has begun an evaluation of the NBIS for ways to simplify procedures and make inspections more cost-effective. The issue of frequency of inspections will be considered as part of this effort. Although States and local governments believe reinspection is necessary, several claim that reinspection every 2 years is not necessary.

(b) The FHWA is currently evaluating the rating code descriptions and factors. While existing descriptions are reasonably uniform, their application by State inspectors is not always uniform. We are proceeding cautiously to be sure that any changes in the coding guide are truly improvements and are cost-effective from both a local and national viewpoint.

(c) The processing of data submitted by the States to the National Bridge Inventory is very efficient and expedient. However, some States could improve their data processing procedures. We are currently working with the States individually to improve their processes.

Section 5(a)(3) would require the Secretary to assess the need for greater State and local government authority for inspection of bridges.

Comment. Current law and regulations specify the National Bridge Inspection Standards as a State responsibility. However, the FHWA believes that the division of responsibility between States and local governments for actually carrying out the inspections is a local matter that is best determined at the State and local level.

We intend to continue encouraging State highway agencies to take the lead in NBIS compliance but not to the extent that local prerogatives are usurped.

Section 5(a)(4) would direct the Secretary to take appropriate actions to ensure that the States achieve full compliance with the bridge posting and closing requirements of the NBIS.

Comment. The FHWA has an ongoing program in each State to encourage compliance with the NBIS. While some local governments are reluctant to follow through with load posting or bridge closing—primarily because such actions would have an adverse effect on the local economy or otherwise result in financial loss—the FHWA program has nevertheless brought about an excellent compliance level, considering the fact that the Surface Transportation Assistance Act of 1978 (STAA) extended the standards to cover off-system bridges.

Section 5(a)(5) would require Federal agencies that own bridges to comply with the National Bridge Inspection Standards.

Comment. The FHWA has no objection to including under the provisions of the National Bridge Inspection Standards those bridges owned by Federal agencies which are part of the public roads systems. We believe affected Federal agencies should conduct their inspections and report bridge data to the National Bridge Inventory through the States in which their bridges are located. This method would provide the States with complete and current data

on the condition and capacity of all their public bridges.

Section 5(b) would direct the Secretary to develop and implement an enforcement plan for bringing about State and local governments' full compliance with the National Bridge Inspection Standards.

Comment. Generally, State and local governments have achieved a good level of compliance with the National Bridge Inspection Standards. Problems for the most part, are due to administrative difficulties experienced by State and local governments. If compliance were to become a problem, however, we would consider legislation or further administrative procedures to enforce the standards. Meanwhile, we will continue to use annual reviews and monitoring to ensure the maximum degree of compliance possible.

Sec. 6.

Section 6(1) would require the Secretary to establish procedures to ensure the rapid completion of an accurate bridge inventory.

Comment. Virtually all Federal-aid bridges have been inventoried; 76 percent of the Nation's off-system bridges had been inventoried as of October 1981. Efforts are underway to complete the inventory. This provision would not provide significant further impetus to complete the inventory.

Section 6(2) would require the Secretary to inventory all bridges maintained by Federal agencies.

Comment. We would recommend that each Federal agency be responsible for such work using its own resources (See 5(a)(5) comment).

Sec. 7.

Section 7 would provide for a public information program on the status of public bridges.

Comment. Public information programs to inform the public concerning weight limits, closings, and hazards, if any, of each bridge will be evaluated for cost-effectiveness by FHWA.



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WASHINGTON, D.C. 20590

OFFICE OF THE ADMINISTRATOR

MAR 15 1982

IN REPLY REFER TO:

HCC-10

The Honorable Steven D. Symms
Chairman, Subcommittee on Transportation
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

Dear Senator Symms:

We very much appreciated having the opportunity to appear before the Subcommittee on February 10 to discuss the national bridge program. Enclosed are responses to the Subcommittee questions which you submitted to the Department by way of letter dated February 16.

If we can be of further assistance, please do not hesitate to contact us.

Sincerely yours,

R. A. Barnhart
Federal Highway Administrator

Enclosure

QUESTION 1:

The current bridge apportionment formula is based upon Federal-aid system bridge and replacement needs only. Do you believe off-system bridges should be included in the apportionment formula also? Should off-system bridges be given the same weight in the formula as on-system bridges?

ANSWER:

The realignment of the Federal-aid system a few years ago shifted many bridges from the Federal-aid system to the off-system. As a result of the Surface Transportation Assistance Act of 1978, which expanded the bridge program to permit rehabilitation of deficient bridges and to include off-system bridges, we believe the needs relative to off-system bridges should be taken into account in any bridge apportionment formula. We do not recommend weighting either Federal-aid or off-system bridge needs because their unweighted values are the most accurate representation of the total bridge needs in each State.

QUESTION 2:

Currently, States may spend no less than 15 percent nor more than 35 percent of their total bridge apportionment for the replacement or rehabilitation of off-system bridges, what is your view on revising the minimum or maximum percentage?

ANSWER:

We believe the 15 percent minimum and 35 percent maximum limitation regarding off-system bridges should be continued. The 15 percent minimum should be retained to provide funds sufficient to assure a meaningful off-system program. The 35 percent maximum is needed to assure that a majority of the funds are spent on bridges on the Federal-aid system which system carries about 85 percent of the Nation's highway traffic.

QUESTION 3:

Under the existing apportionment formula each State's need is calculated as square footage of deficient Federal-aid bridges multiplied by the State's average bridge construction cost per square foot. The cost per square foot varies among States, ranging from a low of \$31 to a high of \$157.

- (a) What accounts for this variation?
- (b) What incentive do States have to do cost-effective construction?
- (c) What specific requirements would discourage excessive cost per square foot estimate or gold plating?

ANSWER:

(a) There are many reasons for variation in costs between States. Some of them are: length of the construction season, which affects start-up costs; availability of materials; relative availability of work force; and transportation costs associated with the transport of materials.

(b) With the tremendous needs in each State and the limited funds available, sufficient State and local pressures exist to force States to be cost effective in bridge design and construction practices.

(c) Specific requirements are not needed to discourage excessive cost per square foot estimates. The FHWA uses average unit bridge costs to determine bridge needs in each State. Because these costs are based upon actual projects constructed and are reviewed by our local and headquarters offices, we believe they are an accurate representation of true costs.

QUESTION 4:

Should the square footage of all bridges within a State, as opposed to the square footage of deficient bridges only, be used in allocating bridge funds? Please comment on the advantages and disadvantages of using the square footage of all bridges to allocate bridge funds. Would such an approach increase the incentive for States to maintain their bridges?

ANSWER:

The area of all bridges within a State was one of the items considered in determining procedures used to compute apportionment factors. The idea was discarded early on because it did not follow the legislative intent with respect to the bridge program to replace or rehabilitate bridges that are unsafe because of structural deficiencies, physical deterioration, or functional obsolescence. Such an approach also does not recognize the extent of the cost difference between bridge replacement and rehabilitation. Bridge funds are provided to States in relative proportion of needs by using deficient bridge area to determine apportionment factors. We do not believe the use of total bridge area would provide any additional incentive for States to maintain their bridges. All States are making an effort to maintain the entire highway network to provide safe and efficient service to the public within the limits of available funds and personnel.

QUESTION 5:

Bridges with sufficiency ratings of 80 and above are included in the total number of a State's deficient bridges, but such bridges are ineligible for funding under the bridge program. Does the inclusion of bridges with 80-plus ratings tend to divert Federal dollars from States with the largest problems?

ANSWER:

No. Only a few bridges with sufficiency ratings greater than 80 were used to develop the current apportionment factors. These bridges were included because of unique circumstances. While their inclusion had a relatively minor effect on apportionments, we propose that in the future bridges with sufficiency ratings greater than 80 not be included in the apportionment determination.

QUESTION 6:

Culverts are eligible for funding, but are not included in the needs data used to determine apportionments. Do you believe they should be included?

ANSWER:

A culvert failure would not be catastrophic whereas the adverse consequences of a bridge collapse are much greater than that of a culvert. We do not believe they should be included.

QUESTION 7:

Presently, bridges with sufficiency ratings of 80 or below are eligible for funding. Those with ratings of 50 to 80 are eligible only for rehabilitation; those with ratings of below 50 are eligible for replacement or rehabilitation. Please comment on the desirability of an apportionment formula that would include only bridges with sufficiency ratings less than 50 or that would give added weight to such bridges.

ANSWER:

We recommend that all eligible bridges with sufficiency ratings of 80 or below be included in the bridge apportionment formula. The local and State-wide perceptions of critical needs will tend to favor the selection of the most critical bridges. It is important to retain eligibility and apportionment for bridges with sufficiency ratings of 50-80 because timely rehabilitation can be much less costly than replacement of a bridge. By providing rehabilitation before deterioration progresses to an advanced stage, the bridge will provide cost-effective and reliable service to the public for an extended period of time.

QUESTION 8:

In determining priority for replacement and rehabilitation, FHWA assigns a numerical sufficiency rating of 0 to 100 for each bridge; 0 indicating a totally insufficient bridge that should be closed and 100 a sufficient bridge in need of no work. As I understand it, the formula for assigning the rating is weighted, with structural adequacy constituting 55 percent, functional adequacy -- 30 percent, essentiality for public use -- 15 percent. Do you believe these factors are adequately weighted?

ANSWER:

Yes. The sufficiency rating formula was first developed by FHWA and later modified by AASHTO in consultation with all State highway departments and FHWA. The weight assigned to structural adequacy and safety comports with 23 U.S.C. 144(d), which requires the Secretary, in approving bridge projects, to give consideration to those projects which will remove those highway bridges most in danger of failure.

QUESTION 9:

Do you believe a more rigid definition of "fair and equitable distribution" of funds within the States should be done [sic] by DOT?

ANSWER:

No. The FHWA has urged each State to develop and tailor its own distribution plan in lieu of our establishing rigid guidelines. We will continue to use management reviews to urge States to develop their own distribution systems. The establishment of strong national guidelines would be antithetical to this approach as they would not adequately take into account factors peculiar to each State. Weak guidelines, on the other hand, would not be meaningful.

QUESTION 10:

Do you believe the recommendations in the GAO report would result in greater Federal intervention in State and local affairs or create an oversight burden?

ANSWER:

Yes. Many of the GAO recommendations would have the Federal government intrude further into State and local prerogatives in their decisionmaking and affect delegations of authority between States and local governments. It would require more regulations, create red tape, and result in costly redirection of FHWA resources without a corresponding significant improvement in the overall program.

QUESTION 11:

A recent GAO report recommended that the Department of Transportation develop a formal selection process for discretionary projects which would weigh factors such as sufficiency ratings, costs, and benefits. Is there a need for a formal selection process?

ANSWER:

We do not believe there is any need for more formal criteria on which to base selections for discretionary bridge funds. The present FHWA implementation plan includes all relevant factors such as sufficiency ratings, costs and

benefits, defense route needs, and essentiality to local and national transportation needs. The problem is not a lack of criteria or of a formal selection process, but rather the fact that each year Congress earmarks specific bridge projects that should be started under the discretionary bridge program funding. Without such Congressional earmarking, DOT would have greater flexibility in assuring that priority bridge projects are selected for discretionary funds.

QUESTION 12:

According to the GAO report some States are not reinspecting their bridges every 2 years as required by the National Standards.

- (a) What are some of the reasons for their failure to meet this requirement? Is a 2-year reinspection cycle necessary for all bridges?
- (b) Do you have current figures on how many on-system and off-system bridges have not been reinspected within 2 years?

ANSWER:

(a) The majority of States are inspecting their bridges every 2 years. Some local jurisdictions are having difficulty in meeting this schedule, primarily because of insufficient personnel and shortage of funds. The FHWA has begun an evaluation of the National Bridge Inspection Standards for ways to simplify procedures and make inspections more cost effective. The 2-year inspection cycle will be considered as part of this evaluation.

(b) The date of the last inspection for every structure is part of the required inventory and appraisal data gathered for each structure for inclusion in the National Bridge Inventory. However, since updates to the National Bridge Inventory are requested only once a year, the last reported inspection date in the inventory may not be the most recent. For this reason, it is not possible to use the National Bridge Inventory to accurately determine the number of bridges not reinspected within the last 2 years. However, we estimate that less than 10% of the Nation's bridges have not been inspected in the last two years. Virtually all of these are on the off-system.

QUESTION 13:

According to GAO's testimony, 75 percent of all bridges were built before 1935 at a time of less traffic, slower speeds and fewer large trucks. Do you believe more and heavier trucks in recent years have accelerated bridge deterioration?

ANSWER:

Yes. Moreover, we anticipate that the number of deficient bridges on the Federal-aid system will accelerate further in the near future. In particular, primary system bridges have received much recent attention from the States as these bridges are beginning to deteriorate at a rapid rate due to the devastating effect of heavier and more truck traffic in combination with other factors such as advancing age, climatological attacks, deicing chemicals, recent severe winters, and deferred maintenance by some States.

QUESTION 14:

Many of the deficient bridges were built before 1935 and are deficient primarily because of age. How many bridges built in the last 10-20 years are deficient? Have technology and materials improved so that recently constructed bridges are holding up better than those constructed 40 years ago?

ANSWER:

The following table shows the number of bridges built in the last 10-20 years and the number of those bridges which are deficient.

	<u>BRIDGES BUILT</u>	
	<u>Year Built</u>	
<u>Highway System</u>	<u>1961-1970</u>	<u>1971-1982</u>
Federal-aid System	69,011	36,456
Off-System	<u>51,412</u>	<u>38,639</u>
Total	120,423	75,095

<u>DEFICIENT BRIDGES</u>		
Federal-aid System	8,418	1,856
Off-System	<u>22,106</u>	<u>10,664</u>
Total	30,524	12,520

Innovative bridge designs and the use of a wide range of durable construction materials, such as corrosion resistant steel, precast high-strength concrete and protection systems for concrete bridge decks, have increased the service life of recently constructed bridges. Notwithstanding these innovations, a regularly scheduled inspection and maintenance program will be necessary to ensure the estimated 10 to 15 percent additional life span of these newer structures is attained.

QUESTION 15:

According to the GAO report, FHWA estimates that 150 bridges collapse each year. What are the primary causes of the bridges collapsing?

ANSWER:

The primary causes of bridge failures are flooding, collision damage by ships or vehicles, and overweight vehicles.

QUESTION 16:

Are States and local governments using any Interstate, Primary, Secondary, or Urban monies for bridge replacement and rehabilitation?

ANSWER:

About \$1.6 billion of Federal-aid funds other than the special bridge funds are spent each year on bridges.

QUESTION 17:

What percent of the apportioned dollar is spent on the inspection and inventory effort?

ANSWER:

Apportioned bridge funds are being used to inventory and inspect bridges. Thirty-four States have obligated \$41.7 million on the Federal-aid system and 36 States have obligated \$55.1 million on the off-system for a total obligation of \$96.8 million for this purpose. This is approximately 3 percent of the total amount of apportioned bridge funds.

QUESTION 18:

Given limited funds available for bridge programs, what is the justification for expanding Federal involvement in off-system bridges? Currently, States may apportion no more than 35 percent, no less than 15 percent of off-system bridges [sic].

ANSWER:

We do not propose to expand Federal involvement in off-system bridges beyond that required by current law. We believe the requirement that at least 15 percent and up to 35 percent of a State's apportioned bridge funds must be spent for off-system bridge projects should be continued. Although the States may now spend up to 35 percent on the off-system, current figures indicate that less than 19 percent of the funds obligated are being spent on off-system bridge projects nationwide.

QUESTION FROM SENATOR ABDNOR:

South Dakota's Secretary of Transportation estimates that approximately 25 percent of the State's general Federal highway funds are used to supplement its bridge replacement and rehabilitation funds; in other words, the State is not receiving sufficient bridge replacement funds. A number of South Dakota's counties have also found it necessary to use their own monies for this purpose. How do the additional State and local funds South Dakota is spending on the bridge program compare with what other States are spending in addition to Federal bridge funds?

ANSWER:

About \$1.6 billion, or 25 percent, of available Federal-aid funds other than the special bridge funds are spent each year on eligible bridges. Our best estimate is that another \$1.3 billion in State and local funds are being spent annually to correct the Nation's bridge problems. These figures indicate that a large portion of regular Federal-aid funds is being spent on a nationwide basis to correct bridge deficiencies.

UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

FOR RELEASE ON DELIVERY
EXPECTED AT 2:00 P.M.
WEDNESDAY, FEBRUARY 10, 1982

STATEMENT OF

HENRY ESCHWEGE, DIRECTOR

COMMUNITY AND ECONOMIC DEVELOPMENT DIVISION

BEFORE THE

SUBCOMMITTEE ON TRANSPORTATION

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

ON

THE BRIDGE PROBLEM AND IMPROVEMENTS NEEDED

IN FEDERAL BRIDGE PROGRAMS

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

WE ARE HERE TODAY AT YOUR REQUEST TO DISCUSS OUR REPORT ENTITLED "BETTER TARGETING OF FEDERAL FUNDS NEEDED TO ELIMINATE UNSAFE BRIDGES" (CED-81-126) WHICH THE ACTING COMPTROLLER GENERAL ISSUED TO SENATOR JAMES SASSER OF TENNESSEE ON AUGUST 11, 1981. SINCE THEN S. 1649, WHICH WOULD IMPLEMENT SEVERAL OF OUR RECOMMENDATIONS, WAS INTRODUCED. I WILL SUMMARIZE THE REPORT'S FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS.

THE BRIDGE PROBLEM

THE UNITED STATES HAS A SUBSTANTIAL BRIDGE PROBLEM. ACCORDING TO THE FEDERAL HIGHWAY ADMINISTRATION'S (FHWA) NATIONAL BRIDGE INVENTORY, THERE ARE MORE THAN 500,000 BRIDGES NATIONWIDE. ABOUT 40 PERCENT, OR SLIGHTLY OVER 200,000 BRIDGES, ARE DEFICIENT.

ABOUT 98,000 OF THESE ARE STRUCTURALLY DEFICIENT, THAT IS, THEY ARE STRUCTURALLY WEAK OR UNSOUND AND MUST BE CLOSED, RESTRICTED TO LIGHTER VEHICLES, OR IMMEDIATELY REHABILITATED TO PREVENT FURTHER DETERIORATION AND COLLAPSE. THE OTHER 102,000 DEFICIENT BRIDGES ARE FUNCTIONALLY OBSOLETE BECAUSE THEY ARE TOO NARROW, HAVE INADEQUATE UNDERCLEARANCES, HAVE INSUFFICIENT LOAD-CARRYING CAPACITY, OR ARE POORLY ALIGNED WITH THE ROADWAY AND CAN NO LONGER SAFELY SERVICE TODAY'S TRAFFIC. ACCORDING TO THE NATIONAL BRIDGE INVENTORY, ABOUT 120,000 BRIDGES ARE OR SHOULD BE POSTED FOR LOWER WEIGHT LIMITS TO RESTRICT THEM TO LIGHTER VEHICLES. FHWA REPORTS THAT ABOUT 3,700 BRIDGES ARE CLOSED TO ALL TRAFFIC, AND THAT AN ESTIMATED 150 BRIDGES COLLAPSE EACH YEAR. AS POINTED OUT LATER, SOME OF THESE STATISTICS NEED TO BE USED WITH CAUTION.

STRUCTURAL DEFICIENCIES OCCUR PRINCIPALLY BECAUSE OF LACK OF PROPER MAINTENANCE DUE TO INSUFFICIENT FUNDS, EXPOSURE TO THE ELEMENTS, GENERAL WEAR, AND POOR INITIAL DESIGN. THE MAJOR REASONS FOR FUNCTIONAL OBSOLESCENCE ARE INCREASED TRAFFIC, CHANGING TRAFFIC PATTERNS, AND HIGHER SAFETY STANDARDS. MANY BRIDGES ARE DEFICIENT LARGELY BECAUSE OF THEIR ADVANCED AGE. ABOUT 75 PERCENT OF ALL BRIDGES WERE BUILT BEFORE 1935, AND THE USUAL DESIGN LIFE IS ABOUT 50 YEARS. WEATHER, EROSION, VIBRATION, DECAY, METAL FATIGUE, AND OTHER FACTORS HAVE OVER TIME WEAKENED MANY OF THESE BRIDGES. ALSO, THE BRIDGES WERE BUILT AT A TIME OF LESS TRAFFIC, SLOWER SPEEDS, AND FEWER LARGE TRUCKS AND BUSES. OFTEN, ROADWAYS HAVE BEEN WIDENED AND IMPROVED TO ACCOMMODATE TRAFFIC, BUT, BECAUSE OF HIGH COSTS, THE BRIDGES HAVE NOT.

DEFICIENT BRIDGES HAVE A SAFETY, ECONOMIC, ENERGY, AND QUALITY OF LIFE IMPACT. MANY OF THESE BRIDGES LIMIT THE USE OF ROADS AND HIGHWAYS AND CAN CAUSE INCREASED ACCIDENTS, TRAFFIC CONGESTION, TRAVEL TIME, DRIVER FRUSTRATION, AND FUEL CONSUMPTION.

FHWA ESTIMATED IN MARCH 1981 THAT IT WOULD COST \$41.1 BILLION TO REPLACE OR REHABILITATE THE DEFICIENT BRIDGES THAT HAVE ALREADY BEEN IDENTIFIED. THE COST ESTIMATE IS EXPECTED TO INCREASE AS ADDITIONAL BRIDGES NEED REPLACING OR REHABILITATING IN THE FUTURE. IF THE AVERAGE LIFE OF A BRIDGE IS 50 YEARS, AN AVERAGE OF 11,320 BRIDGES WILL NEED REPLACING EACH YEAR, MANY MORE THAN ARE CURRENTLY BEING REPLACED. INFLATION WOULD FURTHER INCREASE THE COST. FHWA'S CONSTRUCTION PRICE INDEX INCREASED 146 PERCENT FROM 1970-79, COMPARED TO 87 PERCENT FOR THE CONSUMER PRICE INDEX. THE SAME INFLATION RATE FOR THE NEXT 10 YEARS WOULD MORE THAN DOUBLE THE COST.

THE FEDERAL BRIDGE PROGRAMS

THE DECEMBER 1967 COLLAPSE OF THE SILVER BRIDGE OVER THE OHIO RIVER BETWEEN OHIO AND WEST VIRGINIA KILLED 46 PEOPLE AND FOCUSED NATIONAL ATTENTION ON BRIDGE CONDITIONS. SHORTLY AFTER THAT TRAGIC ACCIDENT, THE CONGRESS ESTABLISHED TWO MAJOR BRIDGE SAFETY PROGRAMS. THE FIRST WAS A PROGRAM OF PERIODIC INSPECTIONS TO IDENTIFY BRIDGE CONDITIONS, MAINTENANCE NEEDS, AND SAFETY PROBLEMS. THE SECOND WAS A PROGRAM OF PROVIDING FEDERAL FUNDS TO THE STATES TO HELP REPLACE UNSAFE BRIDGES. THE PROGRAMS WERE INITIALLY LIMITED TO BRIDGES ON THE FEDERAL-AID HIGHWAY SYSTEM, BUT THE SURFACE TRANSPORTATION ASSISTANCE ACT OF 1978 INCLUDED OFF-SYSTEM BRIDGES, THAT IS, BRIDGES OFF THE FEDERAL-AID SYSTEM.

THE BRIDGE REPLACEMENT/REHABILITATION PROGRAM

THE ASSISTANCE PROGRAM IS NOW REFERRED TO AS THE HIGHWAY BRIDGE REPLACEMENT AND REHABILITATION PROGRAM. THE 1978 ACT, IN ADDITION TO MAKING OFF-SYSTEM BRIDGES ELIGIBLE FOR PROGRAM FUNDING, PERMITTED RECONSTRUCTION OR REHABILITATION RATHER THAN COMPLETE REPLACEMENT OF A BRIDGE AND INCREASED THE MAXIMUM FEDERAL SHARE OF EACH PROJECT FROM 75 PERCENT TO 80 PERCENT. THE ACT ALSO PROVIDED THAT AT LEAST 15 PERCENT AND NO MORE THAN 35 PERCENT OF THE FUNDS APPORTIONED TO THE STATES IS TO BE USED FOR OFF-SYSTEM BRIDGES, AND IT DESIGNATED \$200 MILLION OF EACH FISCAL YEAR'S AUTHORIZATION TO BE USED AT THE DISCRETION OF THE SECRETARY OF TRANSPORTATION GENERALLY FOR BRIDGES THAT COST MORE THAN \$10 MILLION TO REPLACE OR REHABILITATE.

THE FEDERAL GOVERNMENT HAS BECOME THE MAJOR SOURCE OF BRIDGE REPLACEMENT AND REHABILITATION FUNDS--PARTICULARLY THROUGH THE BRIDGE REPLACEMENT/REHABILITATION PROGRAM. FUNDING AUTHORIZATIONS HAVE TOTALED \$5 BILLION FROM THE PROGRAM'S BEGINNING IN FISCAL YEAR 1972 THROUGH FISCAL YEAR 1982. AUTHORIZATIONS AVERAGED ABOUT \$120 MILLION PER YEAR FOR THE FIRST 7 YEARS AND SLIGHTLY OVER \$1 BILLION PER YEAR FOR THE LAST 4 YEARS. THE LATEST AVAILABLE DATA SHOWS THAT, AS OF DECEMBER 31, 1980, FHWA HAD APPROVED FUNDING FOR THE REPLACEMENT OR REHABILITATION OF 6,325 BRIDGES. OF THESE, 1,877 HAD BEEN COMPLETED; 2,058 WERE UNDER CONSTRUCTION, AND 2,390 WERE IN PRELIMINARY ENGINEERING. AS STATED ABOVE, THE FEDERAL GOVERNMENT CONTRIBUTES A MAXIMUM OF 80 PERCENT OF EACH PROJECT'S COSTS, AND STATE AND/OR LOCAL GOVERNMENTS PROVIDE THE REMAINDER.

PROGRAM FUNDING HAS BEEN LIMITED IN COMPARISON TO THE SIZE OF THE BRIDGE PROBLEM. FOR EXAMPLE, ALL THE PROJECTS APPROVED DURING THE FIRST 9-1/2 YEARS OF THE PROGRAM WOULD BE ONLY ABOUT 3 PERCENT OF THE BRIDGES THAT ARE CURRENTLY IDENTIFIED AS DEFICIENT. CLEARLY, CONTINUED HIGH FEDERAL FUNDING LEVELS AND GREATER STATE AND LOCAL EFFORTS WILL BE NEEDED TO "PUT A DENT IN" THE BRIDGE PROBLEM. EVEN WITH INCREASED FUNDING, THE UNITED STATES MAY HAVE A LARGE NUMBER OF DEFICIENT BRIDGES FOR YEARS TO COME. WE CONSIDER IT ESSENTIAL THAT THE LIMITED FEDERAL BRIDGE REPLACEMENT/REHABILITATION PROGRAM FUNDS BE USED WHERE THEY ARE NEEDED THE MOST. TO ENSURE THAT THIS IS DONE, WE RECOMMENDED TWO MAJOR CHANGES IN THE PROGRAM. ONE CHANGE CONCERNS DISTRIBUTION OF PROGRAM FUNDS TO THE STATES. THE OTHER CONCERNS PROJECT ELIGIBILITY AND SELECTION.

DISTRIBUTION OF FUNDS TO THE STATES HAS BEEN BASED ON OUTDATED AND INCOMPLETE DATA. THE 1978 SURFACE TRANSPORTATION ASSISTANCE ACT PROVIDES THAT THE BASIC BRIDGE FUNDS BE ALLOCATED TO THE STATES ACCORDING TO APPORTIONMENT FACTORS APPROVED BY THE HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION IN OCTOBER 1978. THE FACTORS, WHICH ARE BASED ON EACH STATE'S RELATIVE NEED, ARE ESSENTIALLY THE SAME AS THOSE FHWA DEVELOPED AND SENT TO THE COMMITTEE IN MAY 1978. FHWA CALCULATED EACH STATE'S NEED (REPLACEMENT COST) AS THE SQUARE FOOTAGE OF THE STATE'S DEFICIENT FEDERAL-AID BRIDGES MULTIPLIED BY ITS AVERAGE BRIDGE CONSTRUCTION COST PER SQUARE FOOT. ACCORDING TO FHWA, THE SQUARE FOOTAGE WAS BASED ON DATA REPORTED FOR THE NATIONAL BRIDGE INVENTORY BETWEEN OCTOBER 1977 AND APRIL 1978. THE AVERAGE CONSTRUCTION COSTS WERE THE AVERAGES FOR 1977.

THE ACT SPECIFIED THAT THE SECRETARY OF TRANSPORTATION APPLY THESE FACTORS TO THE AUTHORIZATION FOR EACH OF THE FISCAL YEARS, 1979-82, FOR WHICH FUNDS WERE PROVIDED. ALTHOUGH THE ACT MADE OFF-SYSTEM BRIDGES ELIGIBLE FOR THE FUNDS, THE INITIAL OFF-SYSTEM INSPECTIONS WERE NOT REQUIRED TO BE COMPLETED UNTIL DECEMBER 31, 1980. THUS, ONLY FEDERAL-AID BRIDGE NEEDS WERE INCLUDED IN THE APPORTIONMENT FACTORS, AND NO PROVISION WAS MADE TO ALLOW FHWA TO ANNUALLY UPDATE THE FACTORS TO REFLECT CURRENT BRIDGE NEEDS, AND INCLUDE OFF-SYSTEM BRIDGES WHICH ACCOUNT FOR OVER HALF OF ALL BRIDGES AND ABOUT 70 PERCENT OF TOTAL DEFICIENT BRIDGES.

TO IMPROVE DISTRIBUTION OF FUNDS TO THE STATES, WE RECOMMENDED THAT THE CONGRESS DIRECT THE SECRETARY OF TRANSPORTATION TO USE THE LATEST AVAILABLE NEEDS DATA, INCLUDING OFF-SYSTEM BRIDGES, TO ANNUALLY ALLOCATE FUNDS TO THE STATES. WE ALSO RECOMMENDED THAT THE CONGRESS CONSIDER ALLOWING THE STATES GREATER FLEXIBILITY TO ADDRESS SEVERE OFF-SYSTEM BRIDGE PROBLEMS BY USING MORE THAN THE MAXIMUM 35 PERCENT OF THE FUNDS FOR OFF-SYSTEM BRIDGES. IN TENNESSEE, FOR EXAMPLE, NEARLY 60 PERCENT OF THE OFF-SYSTEM BRIDGES ARE DEFICIENT AND OVER 1,300 HAVE BEEN RECOMMENDED FOR CLOSURE. STATE OFFICIALS WOULD HAVE LIKED TO HAVE SPENT MORE THAN THE MAXIMUM 35 PERCENT FOR OFF-SYSTEM BRIDGES BECAUSE OF THEIR POOR CONDITION BUT COULD NOT UNDER THE LAW.

WE FURTHER RECOMMENDED THAT THE SECRETARY OF TRANSPORTATION DIRECT FHWA TO REVISE ITS PROJECT ELIGIBILITY CRITERIA TO CONCENTRATE ON BRIDGES IN THE WORST CONDITION AND MOST IN NEED OF REPLACEMENT OR REHABILITATION. STILL WE POINTED OUT THAT STATE AND LOCAL GOVERNMENTS WILL NEED SOME FLEXIBILITY IN SELECTING

PROJECTS. FHWA'S DECEMBER 1978 CHANGE IN ELIGIBILITY CRITERIA NOT ONLY BROADENED THE DEFINITION OF A DEFICIENT BRIDGE BUT ALSO RESULTED IN NEARLY ALL DEFICIENT BRIDGES BEING ELIGIBLE FOR FUNDING. WE DO NOT BELIEVE THAT A PROGRAM THAT IS CURRENTLY FUNDED PRIMARILY WITH FEDERAL FUNDS OF ABOUT \$1 BILLION PER YEAR CAN BE DIRECTED EFFECTIVELY AT ELIMINATING ALL DEFICIENT BRIDGES, WHICH, I POINTED OUT EARLIER, FHWA ESTIMATED WOULD COST \$41.1 BILLION IN 1981 DOLLARS. WE RECOGNIZE THE NEED FOR WORK ON A WIDE RANGE OF DEFICIENT BRIDGES, BUT OTHER FEDERAL-AID HIGHWAY FUNDS AND STATE AND LOCAL FUNDS COULD BE USED FOR THIS WORK IF CONSIDERED ESSENTIAL. MORE RESTRICTIVE CRITERIA WOULD BETTER ENSURE THAT BRIDGES IN THE WORST CONDITION AND MOST IN NEED OF WORK ARE SELECTED FIRST.

TO DETERMINE THE TYPE OF BRIDGES SELECTED BY THE STATES FOR FUNDING UNDER THE PROGRAM, WE EXAMINED PROJECT APPROVAL DATA FOR 10 STATES, WITH EMPHASIS ON THE SUFFICIENCY RATINGS. EACH BRIDGE RECEIVES A SUFFICIENCY RATING, WHICH IS THE METHOD USED TO EVALUATE THE ADEQUACY OF A BRIDGE TO REMAIN IN SERVICE IN ITS PRESENT CONDITION. A RATING OF 100 WOULD REPRESENT AN ENTIRELY SUFFICIENT BRIDGE--ONE THAT NEEDS ABSOLUTELY NO WORK. A ZERO RATING WOULD INDICATE AN ENTIRELY INSUFFICIENT OR DEFICIENT BRIDGE--ONE THAT HAS MANY SAFETY PROBLEMS AND SHOULD BE CLOSED. THE LOWER THE RATING, THE HIGHER THE PRIORITY FOR REPLACEMENT.

THE STATES ARE SELECTING MANY BRIDGES WITH LOW SUFFICIENCY RATINGS. IN THE 10 STATES FOR WHICH WE EXAMINED PROJECT APPROVAL DATA, ABOUT 40 PERCENT OF THE BRIDGES SELECTED FOR FUNDING HAD SUFFICIENCY RATINGS BELOW 20. HOWEVER, THE STATES ALSO HAD SELECTED SOME BRIDGES WITH RELATIVELY HIGH RATINGS. FOR THE 10

STATES, 534, OR ABOUT 21 PERCENT, OF THE 2,544 BRIDGES SELECTED HAD RATINGS OF 40 OR ABOVE AND MANY OF THESE HAD RATINGS OF 60 OR ABOVE.

FEDERAL HIGHWAY OFFICIALS TOLD US THAT THEY ENCOURAGE THE STATES TO SELECT BRIDGES WITH LOWER SUFFICIENCY RATINGS, BUT THE STATES MAY SELECT ANY ELIGIBLE BRIDGE AND MANY FACTORS, SOME UNIQUE TO AN INDIVIDUAL STATE, ENTER INTO THE SELECTION PROCESS.

WE FOUND THAT FHWA, IN ADMINISTERING THE \$200 MILLION ANNUALLY IN DISCRETIONARY FUNDS, WAS ALSO SELECTING BRIDGES WITH RELATIVELY HIGH SUFFICIENCY RATINGS. THE MAJOR REASON IS THAT FHWA SELECTS BRIDGES WITH "LEGISLATIVE HISTORY" FIRST. FHWA CONSIDERS BRIDGES TO HAVE LEGISLATIVE HISTORY IF THEY ARE MENTIONED IN CONGRESSIONAL COMMITTEE REPORTS OR THE CONGRESSIONAL RECORD AS CANDIDATES FOR DISCRETIONARY FUNDING. MORE AND MORE BRIDGES ARE RECEIVING LEGISLATIVE HISTORY. WE RECOMMENDED THAT THE SECRETARY OF TRANSPORTATION DEVELOP A FORMAL SELECTION PROCESS FOR DISCRETIONARY PROJECTS TO PROPERLY WEIGH FACTORS SUCH AS SUFFICIENCY RATINGS, COSTS, AND BENEFITS.

NATIONAL BRIDGE INSPECTION PROGRAM

THE MAJOR ASPECT OF THE NATIONAL BRIDGE INSPECTION PROGRAM IS THAT STATE AND/OR LOCAL GOVERNMENTS MAINTAIN AN INVENTORY OF THEIR BRIDGES AND INSPECT THEM IN ACCORDANCE WITH THE NATIONAL BRIDGE INSPECTION STANDARDS. THESE STANDARDS WERE DEVELOPED BY THE DEPARTMENT OF TRANSPORTATION IN CONSULTATION WITH THE STATES AND OTHER INTERESTED PARTIES TO SERVE AS THE MINIMUM REQUIREMENTS TO BE MET WITH REGARD TO BRIDGE INVENTORY AND INSPECTION. THE BASIC TENET OF THE STANDARDS IS THAT QUALIFIED PERSONNEL USE

PROPER METHODS TO INSPECT BRIDGES AT APPROPRIATE INTERVALS AND PROPERLY RECORD AND MAINTAIN THE DATA THEY COLLECT.

STATE AND LOCAL GOVERNMENTS HAVE MADE SUBSTANTIAL PROGRESS SINCE THE PROGRAM'S START, BUT FULL COMPLIANCE WITH THESE IMPORTANT STANDARDS HAS NOT BEEN ACHIEVED. FOR EXAMPLE, WE FOUND THAT:

--SOME INSPECTORS DID NOT MEET THE MINIMUM QUALIFICATIONS FOR TRAINING AND EXPERIENCE.

--SOME STATE AND LOCAL GOVERNMENTS WERE NOT INSPECTING THEIR BRIDGES AT LEAST EVERY 2 YEARS AS REQUIRED BY THE STANDARDS, AND SOME LOCAL GOVERNMENTS WERE NOT INSPECTING THEIR BRIDGES AT ALL.

--THE INITIAL INVENTORY AND INSPECTION OF BRIDGES, PARTICULARLY BRIDGES OFF THE FEDERAL-AID HIGHWAY SYSTEM, HAD NOT BEEN COMPLETED.

--STRUCTURALLY WEAK BRIDGES WERE NOT ALWAYS BEING PROPERLY CLOSED OR POSTED FOR LOWER WEIGHT LIMITS TO PROTECT AGAINST BRIDGE COLLAPSES. EVEN IF BRIDGES WERE PROPERLY POSTED OR CLOSED, THE POSTINGS AND CLOSINGS WERE OFTEN IGNORED BY THE PUBLIC. BRIDGE WEIGHT LIMITS WERE NOT ALWAYS ENFORCED, AND FINES FOR VIOLATIONS WERE SMALL AND INEFFECTIVE.

WE RECOMMENDED THAT THE SECRETARY OF TRANSPORTATION DIRECT FHWA TO ASSESS THE STATES' AND LOCAL GOVERNMENTS' COMPLIANCE WITH THE NATIONAL BRIDGE INSPECTION STANDARDS AND DEVELOP A STRATEGY FOR BRINGING ABOUT FULL COMPLIANCE. AS PART OF THE ASSESSMENT, THE ADMINISTRATOR SHOULD DETERMINE (1) WHETHER ANY OF THE REQUIREMENTS, SUCH AS THE 2-YEAR REINSPECTION REQUIREMENT, SHOULD BE STRENGTHENED OR LESSENED, (2) WHETHER FHWA SHOULD ENCOURAGE STATE GOVERNMENTS

TO ASSUME AUTHORITY FOR OFF-SYSTEM INSPECTIONS, AND (3) THE NEED TO PENALIZE OR TAKE OTHER ACTION AGAINST THOSE GOVERNMENTS THAT DO NOT COMPLY. THE RESULTS OF THE ASSESSMENT SHOULD BE INCLUDED IN THE ANNUAL REPORT TO THE CONGRESS ON THE BRIDGE PROGRAMS.

WE ALSO FOUND INCOMPLETE, INACCURATE, AND UNRELIABLE INVENTORY DATA AND INCONSISTENCIES IN BRIDGE INSPECTION AND RATING, AND LIMITED MONITORING OF THE PROGRAM BY FHWA. WE RECOMMENDED THAT THE SECRETARY OF TRANSPORTATION DIRECT FHWA TO GIVE MORE EMPHASIS TO ACCURATE AND COMPLETE NATIONAL BRIDGE INVENTORY DATA AND CONSISTENT INSPECTION PROCEDURES AND BRIDGE RATINGS.

FINALLY OUR REPORT POINTED OUT THAT FEDERAL AGENCIES SUCH AS THE NATIONAL PARK SERVICE AND FOREST SERVICE OWN ABOUT 14,000 BRIDGES. THESE AGENCIES, HOWEVER, ARE NOT REQUIRED TO COMPLY WITH THE NATIONAL BRIDGE INSPECTION STANDARDS AS STATE AND LOCAL GOVERNMENTS ARE. WHILE THE AGENCIES INCLUDED IN OUR REVIEW DID HAVE INSPECTION PROGRAMS, THEY WERE NOT ALWAYS COMPLYING WITH THEIR OWN REGULATIONS AND SOME OF THE PROGRAMS DID NOT CONFORM TO THE NATIONAL STANDARDS. WE BELIEVE THAT THE TRAVELING PUBLIC SHOULD HAVE REASONABLE ASSURANCE THAT BRIDGES IT CROSSES IN NATIONAL PARKS AND ON OTHER FEDERAL LANDS ARE ADEQUATELY INSPECTED AND MONITORED. WE RECOMMENDED THAT THE CONGRESS REQUIRE FEDERAL AGENCIES THAT OWN BRIDGES TO COMPLY WITH THE NATIONAL BRIDGE INSPECTION STANDARDS. THE FULL IMPACT OF SUCH A REQUIREMENT WOULD NOT BE KNOWN UNTIL FHWA COMPLETES THE ASSESSMENT OF THE STANDARDS THAT WE RECOMMENDED EARLIER.

THE DEPARTMENT OF TRANSPORTATION'S RESPONSE TO OUR REPORT HAS BEEN LARGELY POSITIVE; IN FACT, IT HAS GIVEN THE REPORT EXTENSIVE

DISTRIBUTION THROUGHOUT FHWA OFFICES. THE DEPARTMENT GENERALLY AGREED WITH OUR REPORT'S FINDINGS AND CONCLUSIONS AND SOME OF THE RECOMMENDATIONS. FOR EXAMPLE, IT PROMISED TO MAKE EVERY EFFORT, WITHIN CURRENT BUDGET RESTRAINTS, TO IMPROVING MANAGEMENT REVIEW IN THESE PROGRAMS. THE DEPARTMENT WAS CONCERNED, HOWEVER, THAT OTHER RECOMMENDATIONS MAY HAVE THE OVERALL EFFECT OF INCREASING ITS WORKLOAD AND FEDERAL INTERVENTION IN STATE AND LOCAL GOVERNMENTS AT A TIME WHEN EFFORTS ARE BEING MADE TO REDUCE THE OVERSIGHT BURDEN.

WE BELIEVE THAT THESE PROGRAMS ARE EXTREMELY IMPORTANT AND CAN BE MORE EFFECTIVE. FOR EXAMPLE, STATE AND LOCAL GOVERNMENTS NEED TO FULLY MEET INSPECTION STANDARDS TO ENSURE PUBLIC SAFETY AND ACCURATE, RELIABLE DATA ON THE CONDITIONS AND NEEDS OF THE NATION'S BRIDGES. WE FURTHER BELIEVE THAT THE RECOMMENDATIONS THAT CONCERN THE DEPARTMENT CAN BE IMPLEMENTED WITH PROPER FLEXIBILITY FOR STATE AND LOCAL GOVERNMENTS. I SHOULD ALSO POINT OUT THAT SOME OF THE CONCERNS ARE OVER POINTS THAT WE RECOMMENDED THAT FHWA ASSESS OR CONSIDER RATHER THAN IMPLEMENT. FOR EXAMPLE, IN SOME STATES, THE STATE GOVERNMENT INSPECTS LOCAL BRIDGES. IN OTHER STATES, SOME LOCAL GOVERNMENTS ARE HAVING PROBLEMS MEETING THE INSPECTION REQUIREMENTS AND WOULD PREFER THAT THEIR STATE GOVERNMENT ALSO PERFORM THE INSPECTIONS. STATE GOVERNMENTS ALREADY HAVE AN INSPECTION ORGANIZATION IN PLACE WHILE MANY LOCAL GOVERNMENTS HAVE TO USE CONSULTANTS. ALSO, INSPECTION AND RATING CONSISTENCY WOULD BE IMPROVED IF STATE TEAMS ARE INSPECTING ALL THE BRIDGES. THUS, WE RECOMMENDED THAT FHWA ASSESS WHETHER IT SHOULD ENCOURAGE STATE GOVERNMENTS TO ASSUME AUTHORITY FOR LOCAL BRIDGE INSPECTIONS. WE UNDERSTAND THE DEPARTMENT'S CONCERN, BUT WHEN IT COMES TO MATTERS OF SAFETY, FEDERAL, STATE, AND LOCAL GOVERNMENTS COLLECTIVELY DO NEED TO PROVIDE SUFFICIENT RESOURCES TO AVOID CATASTROPHES.

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MR. CHAIRMAN, THIS CONCLUDES MY STATEMENT. WE WILL BE GLAD TO RESPOND TO YOUR QUESTIONS.



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

COMMUNITY AND ECONOMIC
DEVELOPMENT DIVISION

February 26, 1982

CED 2-131

The Honorable Steve Symms
Chairman, Subcommittee on Transportation
Committee on Environment and Public Works
United States Senate

Dear Mr. Chairman:

By letter dated February 16, 1982, you requested that I respond to a number of questions relating to the Highway Bridge Replacement and Rehabilitation Program which time constraints prevented you from asking at recent oversight hearings on the program.

My responses to these questions are contained in the enclosure to this letter. They are based on information obtained while preparing our report entitled "Better Targeting Of Federal Funds Needed To Eliminate Unsafe Bridges" (CED-81-126, Aug. 11, 1981).

Sincerely yours,

A handwritten signature in cursive script that reads "Henry Eschwege".

Henry Eschwege
Director

Enclosure

CED 2-131

Question 1 - Do you believe the FHWA plan for selecting discretionary projects is adequate? If not, what changes should be made?

Our major concern about FHWA's current implementation plan is that it does not ensure that factors such as sufficiency ratings, costs, and benefits are properly weighed and that the most worthy bridges are selected first. The plan states that discretionary funds are to be used to finance the replacement or rehabilitation of high-volume bridges in excess of \$10 million, prioritized by sufficiency rating, including those bridges suggested by the Congress as likely candidates for replacement or rehabilitation under the program. Special consideration is also to be given to those States whose accumulation of normal apportioned funds over several years could not possibly fund an expensive bridge. Also, technical amendments to the 1978 Surface Transportation Assistance Act, which were signed on November 9, 1979, revised the eligibility requirements to include bridges that cost less than \$10 million but twice the amount apportioned to the respective State for the year in which funds are requested.

Under the plan, bridges with "legislative history" receive top priority. FHWA considers bridges to have legislative history if their replacement/rehabilitation is required by law, or they are mentioned in conference or committee reports, or in the Congressional Record as likely candidates for funding under the discretionary program. Through fiscal year 1981, 45 projects had been approved for funding. Of these, 27 had legislative history, and 18 did not. For fiscal year 1982, an additional 8 bridges had been selected through December 23, 1981. All eight had legislative history. More and more bridges are being given legislative history, and all these may not be funded because of insufficient funds.

The result of the current plan has been that some bridges in relatively good condition have been selected, and some bridges in very poor condition have not. This is true for bridges with and without legislative history. Furthermore, State officials had not always been aware of FHWA's selection method or thought a bridge had legislative history based on letters to FHWA from members of the State's congressional delegation.

We recommend that FHWA develop a formal selection process for discretionary projects that properly weighs factors such as sufficiency ratings, costs, and benefits. The discretionary funds should continue to be used for high-cost, high-volume

deficient bridges. The States should request that such bridges in their States be considered and express their willingness to provide the matching funds and move the projects forward. Within this group, FHWA would establish relative priorities and select from the list of eligible bridges based on its analyses of the bridges' sufficiency ratings, costs, benefits, etc.

Question 2 - The GAO report recommends that Congress require that Federal agencies inspect their bridges in accordance with the National Bridge Inspection Standards. Why is it essential? Do they follow these standards now? What would be the impact on the agencies' budgets?

We recommend that the Congress require Federal agencies that own bridges to comply with the National Bridge Inspection Standards because we believe that the traveling public should have reasonable assurances that bridges it crosses in national parks and on other Federal lands are adequately inspected and monitored. The national standards were developed by the Department of Transportation, in consultation with the States and others, as minimum requirements necessary to insure proper bridge inspection. We see no reason why inspection requirements for a bridge on Federal land should be different from the requirements for State and local government bridges. We recognize that the traffic volume on many Federal agency bridges may be relatively low, but this is also true of many State and local bridges.

As discussed in chapter 7 of our report, Federal agencies are not required to follow the standards for most of their bridges. The Federal agencies we contacted all had inspection programs, but some of the programs did not conform to the national standards, and the agencies were not always complying with their own regulations. Requiring the agencies to comply with the national standards would bring the programs into conformity, give more emphasis to Federal agency bridge inspections, and provide better monitoring of the programs by the agencies and the respective States where the bridges are located.

We do not believe that the budget impact of our recommendations would be substantial. All the agencies included in our review already had inspection programs. In many cases, complying with the national standards would only require that they meet their own internal requirements or adjust their programs somewhat. The full impact would not be known, however, until FHWA completes the overall assessment of the standards that we recommend in chapter 5 of the report. There may be some additional

costs for the agencies but we view these costs as necessary for public safety. Furthermore, good inspection programs provide for better decisions on bridge replacement, rehabilitation, and maintenance.

Question 3 - During your review, you talked with many State and local officials. What are their views on these programs? What do they like about the programs, and what are their concerns?

Our observation is that State and local governments generally view these programs favorably. They recognize their bridge problem, and they are appreciative of the additional source of funds. Many State and local governments are heavily dependent on the bridge replacement/rehabilitation program. For the most part, they also recognize the need for bridge inspections. In the States we visited, we found that State officials involved in these programs considered their working relationships with their FHWA counterparts to be very good.

Probably the major concern among State and local officials, other than the need for more funds, is the 2-year reinspection requirement and whether it is cost effective. Also, some State and local governments are concerned about being able to provide the 20-percent matching funds required by the bridge replacement/rehabilitation program. The requirement for matching funds can be especially difficult when the State requires the local governments to provide the funds.

Local governments have also complained about the program's "red tape," but this could be because at the time of our review, many local governments had little or no experience with Federal highway program requirements. Some local governments also were concerned about Federal standards for bridge replacement and rehabilitation. They viewed them as excessive and as adding too much cost to bridge projects. Also, State and local officials have expressed concern about bridge construction delays due to Federal requirements such as those for environmental, wetlands, and historical assessments and Corps of Engineers and Coast Guard permits. We are currently conducting a survey of Federal standards and requirements for bridge replacement and rehabilitation to further examine the basis for these concerns.

Question 4 - You recommend that FHWA define "fair and equitable distribution" of program funds throughout the State and formally monitor distribution within the States. Do you believe FHWA can develop one distribution system that would fit the needs of each individual State?

The 1978 Surface Transportation Assistance Act requires that the funds apportioned to a State "shall be made available for obligation throughout such State on a fair and equitable basis." FHWA had incorporated this requirement into its regulations for the program, but it had not defined fair and equitable throughout the State or provided any guidelines on how the requirement is to be met.

In this regard, we are not recommending that FHWA develop an individual distribution system for each State or one system for all the States. Rather, we would like for FHWA to define "throughout the State on a fair and equitable basis" in order to guide the States in their development of distribution plans. The definition would also serve as a basis for FHWA, local governments, and others to monitor funds' distribution and to question unfair distributions. Local governments are concerned about whether they will be treated fairly by State governments that are responsible for about an equal number of bridges and have the authority to unilaterally distribute program funds. We believe that local governments' participation in the program is vital and that their continued full participation requires that they view the program as creditable and fair. Furthermore, we question how FHWA can determine that the legislative requirement for fair and equitable distribution is being carried out if the term is not defined and distribution is not monitored accordingly. We believe that FHWA can establish a definition that is flexible and that provides for the States to properly address all important factors.

Question 5 - Are Federal, State, or local officials in the best position to decide which bridges are most in need of replacement or rehabilitation?

In our report, we point out that we believe that project selection can best be made at the State and local levels where officials should be the most knowledgeable about their bridges and the safety and economic considerations that are involved. Thus, the State would have the primary responsibility for selecting projects on the State-controlled highway system, and the local governments would select the projects for local bridges with technical advice from the States. A key is the decision on how the funds are to be allocated or distributed within the individual State. If distribution is on a project-by-project basis rather than allocating a certain amount for local bridges, local governments will need to be adequately represented in the selection. We would let the parties involved work out the best method for doing this.

We also believe that the Federal Government has a proper role in project selection under this program. We view this role as determining what types of bridges are eligible for funding, with the State and/or local governments making the actual selection from the list of eligible bridges.

We are not proposing to take project selection or all flexibility away from State and local governments. However, we are asking that these programs be better targeted to those bridges in the worst condition and most in need of replacing or rehabilitating. With the large number of bridges in poor condition in many States, the number of candidate bridges could be large. A more restrictive criteria could better target the funds and yet allow States and local officials to take into account sufficiency ratings and other factors such as economic impact and also avoid a slowdown in using the funds because replacement or rehabilitation of a bridge with a lower sufficiency rating is delayed or cannot be started right away.



DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20250

March 15 1982

Honorable Robert T. Stafford
Chairman, Committee on Environment
and Public Works
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

We would like to offer our views on S. 1649, a bill "To improve the highway bridge replacement and rehabilitation program."

The Department of Agriculture has no objection to the enactment of S. 1649 if amended as suggested herein.

S. 1649 directs the Secretary of Transportation to make revisions in the highway bridge replacement and rehabilitation program to ensure the replacement and rehabilitation of the deficient bridges in the United States in a timely and efficient manner, the fair distribution of Federal funds within the various States for replacement and rehabilitation of bridges, and the compliance of the States with the National Bridges Inspection Standards.

The Forest Service is responsible for approximately 7,100 bridges which meet the definition referenced in the subject bill. The Forest Service has had an operating bridge inventory system since the early 1960's and with the assistance of the Department of Transportation, has developed policies, conducted training programs, and inspected bridges since 1968.

Section 5(a)(5) of the proposed bill requires all Federal agencies maintaining bridges to comply with the National Bridge Inspection Standards. The distinctions between bridges which are a part of public transportation systems and bridges which are a part of resource management road systems need to be recognized. There is no question that people using those roads under Forest Service jurisdiction, which are open to public travel should be afforded the same degree of safety as the public highway users. However, to require administration of all Forest roads to the same standards as our Nation's basic transportation system is unnecessary and not cost effective.

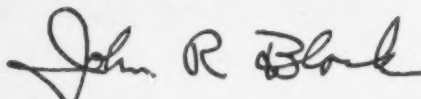
Our policy is to comply with the National Bridge Inspection Standards and our field offices have complied with the technical requirements of the standards. Our only objection is with the required 2-year frequency of inspection for all bridges. We are in the process of developing a "formula" approach to determining inspection frequency for individual bridges consistent with traffic volumes, the amount and timing of heavy hauling, and other factors unique to resource management roads. Our intent is to assure compliance with the National standard for those bridges which closely relate to "highway" criteria, but to eliminate unnecessary inspection of low-volume, controlled use bridges. We would like to preserve flexibility to establish inspection schedules different from the National standard when appropriate.

Section 6(2) requires the Secretary of the Department of Transportation (DOT) to inventory all bridges maintained by Federal agencies. Since most Federal agencies have bridge inventory systems in place, it is not necessary to duplicate efforts. Making existing Federal agency bridge inventories available to the Secretary of DOT should meet the requirement of section 6.

Our proposed amendments are enclosed.

The Office of Management and Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely,



John R. Blodde
Secretary

Enclosure

AMENDMENTS TO S. 1649

1. Section 2 is amended by adding the following: "(9) The term 'public road' shall have the same meaning provided in section 101(a)."
2. Subsection 5(a)(5) is amended by inserting after the word "bridges" the words ", which are part of the public road system,".
3. Section 6 is amended by inserting after the word "Secretary" the words "in cooperation with the appropriate Secretaries".



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
NASHVILLE, TENNESSEE 37219

May 27, 1982

Senator Steve Symms
Committee on Environment and
Public Works
United States Senate
Washington, D.C. 20510

Dear Senator:

Enclosed are your questions along with Tennessee's
answers regarding the Highway Bridge Replacement and
Rehabilitation Program. I hope these will be helpful
to your deliberations.

Yours very truly,

A handwritten signature in cursive script, which appears to read "Clellon L. Loveall".

Clellon L. Loveall
Engineering Director, Structures

CLL:vh

Enclosure

QUESTIONS: STATE DOT OFFICIALS

- (1) The GAO report cites problems with railroad bridges and toll bridges complying with inspection requirements. Is this a problem in your State?

The Department does not have toll bridges. The railroads furnish a minimum amount of data on request. It would be helpful if they felt obligated to provide this information on a two year cycle.

- (2) How long does it take for data on inspection reports to be entered into the inventory? Do you believe there should be a specific requirement that information is updated on the inventory within a certain time period?

(a) Inspection data for bridges in fair and good condition enters the computer inventory upon receipt of the reports. Data for bridges in poor and critical condition is further evaluated by headquarters and the computer inventory is updated within three months of receipt of reports. In accordance with our departmental policy, we send a computer tape of our inventory to FHWA in Washington twice a year. FHWA requires only one tape submittal a year.

(b) A period of six months for updating the inventory would be acceptable. One important point to keep in mind when considering time periods, is the necessity of reporting hazardous situations directly to the appropriate maintenance authority. This is our practice.

- (3) The cost of bridge inspections varies significantly from State to State. What do you believe causes this variation?

Our average cost for an in-depth inspection varies between \$300 and \$800 per bridge dependent on the personnel performing the work (consultant or state) and the kind of inspection (initial or biennial). We believe this is the minimum cost necessary to satisfy the NBIS. Inspection costs substantially less than these probably reflect a superficial inspection performed by less than qualified personnel.

Specific factors that affect cost variations are:

- (a) The depth of inspection.
- (b) Experience and technical expertise of inspectors.
- (c) Amount of documentation required.
- (d) Organization performing inspection (Consultant or State).
- (e) Comprehensiveness of reports.

- (4) According to the GAO report, by December 1980, the States had submitted for discretionary bridge funds 192 bridges at a total cost of \$5.3 billion. Given that \$200 million is annually available for this program, how do you believe bridges should be selected for discretionary funds?

First consideration should be given to those bridges in poor condition having major structural deficiencies and qualifying sufficiency ratings.

- (5) Apart from the Federal bridge program, how large a State-only financed bridge program do each of you have?

A \$20 million grant program which is intended to replace 500 to 600 critically deficient bridges.

- (6) In some cases local governments are responsible for inspecting certain bridges. What would be the advantages and/or disadvantages in requiring the State government to inspect all bridges?

The disadvantages of requiring State government to inspect all bridges are:

- (a) The State assumes some legal liability for local government bridges.
- (b) Inability to enforce recommendations.

Advantages:

- (a) More consistent data and documentation.
- (b) More consistent enforcement of NBIS.
- (c) More cost effective when done in accordance with NBIS.
- (d) More efficient collection of computer inventory data.

- (7) The GAO report stated that some bridge inspectors did not meet the minimum qualifications for training and experience. Do you agree with this statement? If so, why is this and what effect does this have on the quality of bridge inspections?

In Tennessee at the time of the GAO report and now, all of our bridge inspection personnel meet the requirements set forth in the NBIS. The effect of non-observance of the minimum qualifications would tend to lower the quality of bridge inspections and possibly fail to recognize hazardous situations.

- (8) In some cases local governments are responsible for posting or closing a bridge once the State has completed the inspection. Is there a widespread problem with local governments carrying out their responsibilities for posting and closing bridges?

Yes, local authorities are very reluctant to post or close bridges due to the furor raised by citizens and a lack of funds to correct the situation. Postings and closures are hard to maintain since motorists will remove them almost as fast as they are erected.

- (9) Should the square footage of all bridges within a State, as opposed to the square footage of deficient bridges only, be used in allocating bridge funds? Please comment on the advantages and disadvantages of using the square footage of all bridges to allocate bridge funds. Would such an approach increase the incentive for States to maintain their bridges?

The square footage of deficient bridges only should be used in allocating bridge funds. This is a logical approach since the emphasis is on replacing hazardous, structurally deficient bridges.

No, most states do maintain their bridges. The major problem is at the local level where maintenance funds are severely lacking.

- (10) Culverts are eligible for funding, but are not included in the needs data used to determine apportionments. Do you believe they should be included?

Yes, since structures less than 20 feet in length can be just as dangerous to traffic as those greater than 20 feet.

- (11) In determining priority for replacement and rehabilitation FHWA assigns a numerical sufficiency rating of 0 to 100 for each bridge; 0 indicating a totally insufficient bridge that should be closed and 100 a sufficient bridge in need of no work. As I understand it, the formula for assigning the rating is weighted, with structural adequacy constituting 55%, functional adequacy - 30%, essentiality for public use - 15%. Do you believe these factors are adequately weighted?

The formula was intended to determine eligibility for funding, as such the factors are adequate. Basically, it classified structures into three groups; those not eligible; less than 80 eligible for rehabilitation; less than 50 eligible for replacement. The actual priorities are judgments determined by the states.

(11) (con't)

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The sufficiency rating does not relate to a structure's ability to remain open to traffic or to be closed. A bridge can have a sufficiency rating of 36 and be closed and a rating of zero and have capacity to carry legal loads.

- (12) The current bridge apportionment formula is based upon Federal-aid system bridge and replacement needs only. Do you believe off-system bridges should be included in the apportionment formula also? Should off-system bridges be given the same weight in the formula as on-system bridges?

In general we believe that apportionment should be based on a state's total deficient bridge needs which would include all bridges on public roads. Yes, the off-system bridges should be given the same weight since structurally deficient posted or closed bridges on the off-system would be as much of an impediment to the community as on-system.

- (13) Presently bridges with sufficiency ratings of 80 or below are eligible for funding. Those with ratings of 50 to 80 are eligible only for rehabilitation; those with ratings below 50 are eligible for replacement or rehabilitation. Please comment on the desirability of an apportionment formula that would include only bridges with sufficiency ratings less than 50 or that would give added weight to such bridges.

The formula should give equal weight to all deficient bridges. We would not recommend giving added emphasis to or deleting any category.

- (14) Bridges with sufficiency ratings of 80 and above are included in the total number of a State's deficient bridges, but such bridges are ineligible for funding under the bridge program. Does the inclusion of bridges with 80 plus ratings tend to divert federal dollars from States with the largest problem?

It would seem illogical to provide funds on a basis of bridges which are ineligible for funding. The funds should be apportioned on a need basis considering only those bridges eligible for funding.

- (15) Does the State need information regarding bridges on Federal lands? If so, have you had any problems in obtaining the necessary information?

Yes. We have had problems in obtaining the necessary information. We have received no data from military bases.

- (16) Given limited funds available for bridge programs, what is the justification for expanding Federal involvement in off-system bridges? Currently, states may apportion no more than 35%, no less than 15% of off-system bridges.

The justification for expanding Federal involvement in off-system bridges is due to the large numbers of those bridges which are hazardous or closed and cannot be addressed within a satisfactory time frame using the existing funding policy. The state and local governments are hard pressed to provide additional funds for the replacement of these bridges. We would recommend 15% minimum be retained with no upper limit.

- (17) What percent of each apportioned dollar is spent on the inspection and inventory effort?

8%

